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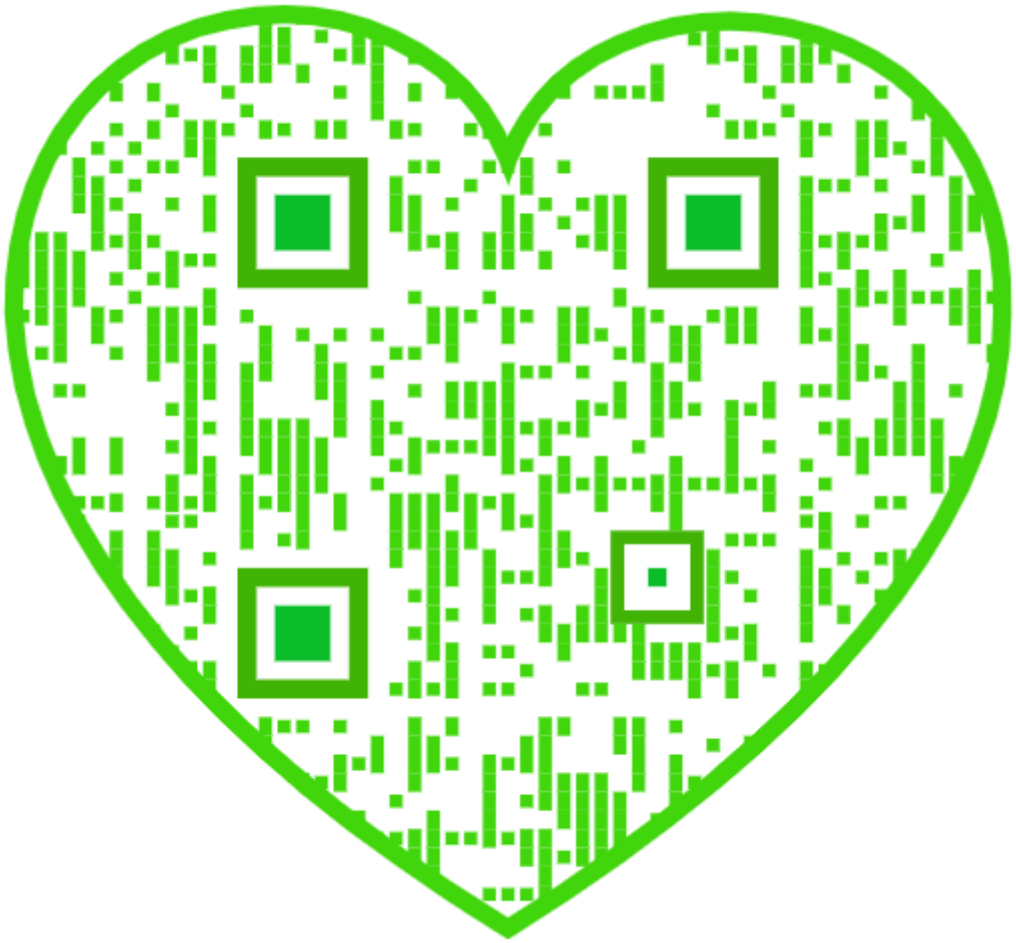

MARY CUSTIS LEE

CHAPTER
No. 1884

UNITED DAUGHTERS OF THE CONFEDERACY

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JUNE 3, 1928

TO THE STUDENT OF OUR NATION'S HISTORY, THERE IS NO CHAPTER MORE INTERESTING OR THRILLING, THAN THE STORY OF THE SOUTH AND THE GREAT ROLE IT HAS PLAYED IN OUR NATIONAL DEVELOPMENT.

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CONTENTS OF VOLUME VI.

ECONOMIC HISTORY, 1865–1910.

THE RECONSTRUCTION AND SOUTHERN ECONOMIC HISTORY. Page.

The Economic Conditions during the Reconstruction 1
The Economic Results of the Reconstruction 12

LAND.

Areas of Cultivation in the South 17
Changes in the Agricultural Methods and Plantation Systems of the South 19
State and Federal Lands and Land Laws in the South 28
The Influence of Real Property Law in the Economic Development of the South 32

LABOR.

Labor Organization in the South 36
Labor and Labor Conditions 41
Convict and Apprenticed Labor in the South 48
Economic and Legal Aspects of the Labor of Women and Children in the South 53
The Mountain Whites as an Industrial Labor Factor in the South 58
The Indians as a Labor Factor in Oklahoma and Indian Territory Since 1865 62

AGRICULTURE.

The Conditions of Tobacco Culture in the Sonth 66
The Conditions of Rice Culture in the South Since 1865 72
Sugar Products in the South 78
Cotton Production in the South 87
Cereal Farming in the South 104
Grass and Forage Crop Farming in the South 117
The Southern Production of Hemp and Flax 124
Vegetables, Fruit and Nursery Products and Truck Farming in the South 127
The Animal Industry of the South 135
Southern Forest Products, and Forest Destruction and Conservation Since 1865 151
The Condition of Fisheries in the South 158
The Oyster Production of the South 163
Pearl Fisheries in the South 166
The Sponge Fishery 167
Game and Game Protection in the South 170

MINES AND MINING.

The Conditions in the Production of Coal in the South 175
The Development and Economic Influence of Petroleum and Natural Gas in the Southern States 186
Building and Ornamental Stone 197
The Cement and Gypsum Industry of the South 202
The Clayworking Industry in the South Since 1865 206
The Production of Southern Phosphate Rock in Relation to Commercial Fertilizers Since 1865 211
The Production of Gold, Silver, Quicksilver, Copper, Lead, and Zinc in the South 215
Iron and Manganese in the South 223
The Production of Certain of the Non-Metallic Minerals in the South Since 1865 233
Minor Mineral Industries in the South 243

MANUFACTURES.

Manufactures in the South from 1865 to 1880 253
Modern Manufacturing Development in the South, 1880-1905 264

TRANSPORTATION AND COMMUNICATION.

Railway Transportation in the South 305
Street Railways in the South Since the War 316
Highways and Improved Roads in the South, 1865-1910 320
Transportation by Water in the South 325
Development of the Merchant Marine in the South 329
Federal and State Aid to Internal Improvements in the South 333
The Development of Telegraphic and Telephonic Communication in the South 339

COMMERCE.

The Influence of the Factorage System 345
The Development of Foreign Commerce of the South 351
The Development of the Interstate Commerce of the South 357
The Growth of the Southern Ports 363
United States Treaties and Foreign Commercial Policies Affecting Southern Economic Development 373

CONTENTS.

VALUE AND EXCHANGE. Page.

The Effect of the Reconstruction on Property Values in the South..... 390
Changes in Property Values Since Reconstruction..... 392
Fluctuations in Prices of Agricultural Products..... 396
Fictitious Dealings in Agricultural Products..... 405

MONEY, CREDIT, AND BANKING.

The Effects of Currency Legislation..... 415
Currency Problems in their Relation to Southern Economic Development.. 418
Agricultural Credit and Crop Mortgages..... 420
Banking in the South..... 426
Trust and Bonding Companies..... 433

GENERAL ECONOMIC AND POLITICAL CONDITIONS.

1. Relation of Government to Agriculture and Industry.

State and Local Governmental Activity in Southern Industry and Commerce 439
Confederate Pensions, Homes and Relief Measures in the South..... 446
Activities of the Federal Government in Southern Economic Development.. 450
State and Federal Governmental Regulation in Southern Industry and Commerce 454
The Influence of State and Federal Governments in Promoting Southern Agriculture 467
The Economic Effects upon the South of the United States Tariff Policy..... 476

2. Finances.

The State Finances of Alabama..... 480
The State Finances of Arkansas..... 483
The State Finances of Florida..... 487
The State Finances of Georgia..... 490
The State Finances of Kentucky..... 493
The State Finances of Louisiana..... 496
The State Finances of Maryland..... 498
The State Finances of Mississippi..... 501
The Finances of Missouri..... 504
The State Finances of North Carolina..... 507
The State Finances of Tennessee..... 512
The State Finances of South Carolina..... 514
The State Finances of Texas..... 519
The State Finances of West Virginia..... 522
The State Finances of Virginia..... 523
The Finances of Oklahoma and Indian Territory..... 532

3. Economic Progress and Problems.

The Influence of the Press in Southern Economic Development..... 536
Economic Statistics in the South..... 542
Contributions of the South to Economic Thought and Writing..... 546
Land Reclamation in Relation to Southern Economic Development..... 551
Water Power in the South..... 560
The Influence of Agricultural and Industrial Fairs and Expositions on the Economic Development of the South Since 1865..... 563
Private Associations and Combinations to Control Trade or Production in the South..... 573
Economic Experiments in Co-operation Since 1865..... 580

GENERAL SOCIAL CONDITIONS.

Immigration Into the Southern States..... 584
The Industrial Conditions of the Tenant Class (White and Black) as Influenced by the Medical Conditions..... 594
Population of the South Since 1865..... 601
Economic Aspects of the Growth of Southern Towns and Cities..... 607
Emigration from the South to the North and West..... 610
The Accumulation of Wealth in the South Since 1865..... 614
Property Insurance in Relation to Southern Economic Development..... 621
Life Insurance in the South..... 625
The Economic Aspects of the South as a Health and Pleasure Resort..... 629

OUTLOOK FOR SOUTHERN ECONOMIC PROGRESS.

The Natural Resources of the South and the Future..... 635
Influence of the Panama Canal on Southern Agriculture, Industry, and Commerce 642
Water Transportation and the Progress of the South..... 647
The Negro in Relation to Southern Progress..... 651

ECONOMIC HISTORY, 1865-1910.

THE RECONSTRUCTION AND SOUTHERN ECONOMIC HISTORY.

THE ECONOMIC CONDITIONS DURING THE RECONSTRUCTION.

ECONOMICALLY as well as politically the South was prostrate when her armies surrendered in 1865. For the next ten years, or during the Reconstruction period, the conditions which existed prevented or hindered normal recovery from the effects of war. Before the war the South was a distinct economic region with problems and conditions unlike those of the free states. This condition was generally considered one of the results of slavery, but the abolition of the slave-labor system failed to change radically the economic peculiarities of the South.

In 1865 industrial society scarcely existed in the South. The great loss of life and health by the whites in the war, the destruction of the slave-labor system, the suffering and destitution which existed during the last years of the war and for several years after the surrender, the destruction of property during the war, the loss of capital, the bankruptcy of the state and local governments—all these unfavorable conditions bore heavily upon the desolated country.

Public property was, for the most part destroyed or confiscated because it had been used by the Confederate government. Aside from the devastation

in Sherman's forty-mile belt, and the battle-field areas, court houses, jails, school houses, and bridges quite generally had to be rebuilt. The steamboats had disappeared from the Southern rivers, having been destroyed or disabled as blockade runners or as vessels in the Confederate navy. The reconstruction of the railways was a difficult task, since bridges, trestles, crossties, depots, and tanks had been burned by the raiding armies, while the rolling stock was worn out, and the cuts and fills were in bad order, washed out or grown up in bushes. Crops were short in 1865, and for several years after; and much of the cotton and other produce remaining over from war times was taken by plundering treasury agents under the pretense that it had belonged to the Confederacy. It has been estimated that in this way more than $30,000,000 worth of cotton, tobacco, corn, rice, and other supplies were taken from the Southern people in 1865 and 1866 and not accounted for to the United States government, and this was taken in addition to the actual property of the Confederacy which was legally subject to confiscation. Besides this, the cotton tax of two to three cents a pound—amounting to $10 to $15 a bale—which was levied during, and for three years after the war—took $70,000,000 from the cotton states.

Capital in all of its forms had disappeared, and bank stock and deposits, as well as all kinds of bonds—state, local, and Confederate—were worthless. Throughout the South there was little money, the merchants and factors were for the most part ruined, and the planter was without support to run his plantation. The manufacturing establishments which existed in 1860 or had developed during the war had gone the way of most other property, and during the Reconstruction manufacturing industry recuperated but slowly in the South. Farm stock in 1865 num-

bered less than 40 per cent. of that owned in 1860 and increased very slowly during the Reconstruction.

Land in 1865 and for several years thereafter was a drug on the market. The planters were "land poor"—that is, they had more land than they could cultivate or pay taxes on. Many plantations were being broken up and sold in small lots at from one-fourth to one-tenth of the prices prevailing in 1860. Much of the land offered for sale could not be sold at all owing to the scarcity of capital. After 1865 mortgage sales were monthly events in every county seat, and it was estimated that by the year 1870 the greater part of the land in the South had changed hands.

The white districts were in an even worse condition than the Black Belt at the end of the war, but they gradually recovered, and, as compared with the Black Belt, the end of the Reconstruction saw them in a better economic position than they had occupied in 1860. The loss of life and health by war reduced the laboring force of white men, throughout the South, but women and children to some extent took their places. The bad conditions which existed from 1862 to 1867 because of poor crops, raids by the army, lack of men to work, etc., were bettered as time went on, especially in the white districts, and brought to the remote white sections transportation agencies, which made possible competition of the farm system area with the plantation system area of the Black Belt. Until the general invasion of 1864 and 1865, the black counties suffered less than the rest of the South. Then their stores of supplies were destroyed, along with the farm stock, implements, bridges, gins, and mills; fences were burned; ditches were left neglected; and large tracts of land were allowed to grow up in bushes. Then, too, the abolition of the slave-labor system made the labor problem much more

acute in the Black Belt than it was in the white districts.

As previously stated, the working force of men in the white districts was reduced by the losses in war. But these losses were replaced in time, and the people settled down into their former industrial system and under conditions more favorable to progress than were enjoyed by their Black Belt competitors, by whom especially the problem of free negro labor had to be solved. Probably a fourth of the slaves had escaped from slavery during the war, and had gained some experience as freedmen before the downfall of the Confederacy, but most of the others stayed on the farms and plantations until the Federal columns marched through and through the South in the spring and summer of 1865, when thousands of them followed these armies and settled down around the military posts. To the loyal remainder, the masters returning from the Confederate army brought the news of the changed relation of master and slave, and many of them made arrangements with their former slaves to finish the crop of 1865, hiring them for money, or promising them a share of the crop.

The average Southern white had in 1865, little faith in free negro labor, for it was the general opinion that without some sort of compulsion the negro would not work efficiently or regularly, and conditions for several years seemed to justify this opinion. The blacks flocked by thousands to the army camps, and to towns and cities where they lived without regular work or food and in disease-scourged quarters. The colored race suffered much during the first years of freedom. DeBow estimated that one-fourth of the negro laborers died or were disabled during the first five years of freedom. A general disposition on the part of the negro to move

at least once a year, the love of hunting, fishing, church and circus going, and other amusements which took him from his work prevented any safe dependence upon black labor. Northern men as partners or overseers were imported by some Southern planters but the experiment failed, and similar attempts to induce white laborers to come to the South met with little success.

Consequently when the Southern legislatures met in the fall of 1865 the most important problem before the South was that of the ex-slave. He must work, obey the laws, respect property, settle down, live up to his contracts, cease vagrant habits, become responsible for himself and to others. To assist in getting the negro into a place in the social order the legislatures passed a body of laws generally called the "Black Codes," which in practically every state provided for an apprentice system, for the enforcement of contracts, the regulation of hours of labor and of wages and treatment, and for penalties against vagrancy. These laws are interesting mainly for the light they throw on the opinions of the legislators, for their execution was suspended by the operations of the Freedmen's Bureau.

The Bureau, a division of the War Department, was planned mainly to look after all matters relating to the blacks. It was to administer confiscated property, to furnish supplies to needy and suffering blacks, and to aid in regulating the labor of the ex-slave. The general result of its work (1865 to 1868) was disturbing, for it constantly interferred between master and servant, and thus rendered the laborers unreliable and insubordinate. The too minute supervision of the Bureau with regulations unsuited to Southern conditions, caused the breakdown of the system, and then the whites and blacks were left to themselves to work out a new labor system.

After numerous attempts at hiring for wages, patriachial protectorates, division of farm produce, etc., both farmer and planter finally settled upon a *metayage* or share system, usually considered by economists a low form of agricultural organization, but at this time probably the only practical way that could have been devised.

Later several methods of share-working were evolved from the industrial chaos. They were much the same in black or white districts, and the usual designations were "on halves," "third and fourth," and "standing rent." The tenant "on halves" received one-half the crop, did all the work, and furnished his own provisions. The planter furnished land, houses to live in, seed, ploughs, hoes, teams, wagons, ginned the cotton, paid for half the fertilizer, and "went security" for the tenant for a year's credit at the supply store in the town, or he furnished the supplies himself and charged them against the negro's share of the crop. The "third and fourth" plan varied according to locality and time, and depended upon what the tenant furnished. Sometimes the planter furnished everything, while the negro gave only his labor and received one-fourth of the crop; again, the planter furnished all except provisions and labor, and gave the negro one-third of the crop. In such cases "third and fourth" was a lower grade of tenancy than "on halves." Later it developed to a higher grade and the tenant furnished teams and farming implements, and the planter the rest, in which case the planter received a third of the cotton, and a fourth of the corn raised. "Standing rent" was the highest form of tenancy, and only responsible persons, white or black, could rent under that system. It called for a fixed or "standing" rent for each acre or farm to be paid in money or in cotton.

The unit of value in cotton was a 500-pound bale of middling grade on October the first. Tenants who had farm stock, farming implements, and supplies or good credit would almost always cultivate for "standing rent." The planter exercised a controlling direction over the labor and cultivation of a crop worked "on halves;" he exercised less direction over "third and fourth" tenants, and was supposed to exercise no control over tenants who paid "standing rent." In all cases the planter furnished a dwelling-house free, wood and water (paid for digging wells), and pasture for the pigs and cows of the tenant. In all cases the renter had a plot of ground from one to three acres, rent free, for a vegetable garden or "truck patch." Here could be raised watermelons, sugar-cane, potatoes, sorghum, cabbage, and other vegetables. Besides his pigs and cows, every tenant could keep chickens, turkeys, and guineas, and especially dogs, and could hunt in all the woods around and fish in all the waters. "On halves" was considered the safest form of tenancy for both planter and tenant, for the latter was only an average man, and this method allowed the superior direction of the planter.

Many negroes worked for wages—the less intelligent and the unreliable could find no other way to work—and some of the best of them preferred to work for wages paid at the end of each week or month. Wage laborers worked under the immediate oversight of the farmer or tenant who hired them. They received $8 to $12 a month and were "found," that is, furnished with rations. In the white counties the negro hired man was often fed in the farmer's kitchen. The laborer, if hired by the year, had a house, vegetable garden, truck patch, and chickens; sometimes he was "found;" sometimes he "found" himself. When he was "found," the allowance for

a week was three and a half pounds of bacon, a peck of meal, half a gallon of syrup, and a plug of tobacco; his garden and truck patch furnished vegetables. This allowance could be varied and commuted. The system was worked out in a few years following the war and lasted for a long time and almost without change.

Both the tenant and the wage laborer had too many privileges for his own good and for the good of the planter. The negro should have been paid more money or given a larger proportion of the crop, and fewer privileges. He needed more control and supervision, and the result of giving him a vegetable garden, a truck patch, a pasture, and the right of hunting and fishing, was that he took less interest in the crop, for the privileges were about all that he wanted.

An essential part of the share system was the custom of advancing supplies to the tenant with a mortgage or lien upon the future crop as security. The lack of capital after the war forced an extension of the old ante-bellum credit or supply system. The merchant, who was also a cotton buyer, advanced money or supplies until the crop was gathered. Before the war his security was crop, land, and slaves; after the war the crop was the principal security, for land was not in demand. Consequently, the crop was most important to the creditor. Cotton was the only good cash staple, and the high prices encouraged all to raise it. Besides, it was to the interest of the merchant, even when prices were low, to insist that his debtors raise cotton to the exclusion of food crops, since much of his money was made by selling food supplies to them.* Before the war the planter alone had much credit and a successful one

*See articles, "Agricultural Credit and Crop Mortgages" and "The Factorage System."

did not make use of credit; but after the war all classes of cotton raisers had to have advances of supplies. The credit or crop lien system was good to put an ambitious farmer on the way to independence, but it was so incentive to the shiftless. Thus cotton became the universal crop under the credit and crop lien system, and even when the farmer became somewhat independent, he seldom planted less of his staple crop, or raised more supplies at home.

The development of the share system did not make the negroes efficient laborers. They produced less per capita than the whites and less than they had produced under slavery. Many of the race worked only when forced by necessity. A person working for wages could seldom be relied upon to come back after payday until his money was spent. The negro tenants were slovenly, jealous of supervision, and suspicious of the landlords. Every year the majority of them moved to new places. They often neglected their own crops and worked for cash for someone else. The "forty acres and a mule" delusion also long kept them disturbed. Besides these reasons for shiftlessness and unreliability, their political importance during the Reconstruction, their love of amusements and of church going, their disposition to flock to towns and cities, their enjoyment of such generous privileges as patch, garden, fuel, etc., did much to demoralize negro agricultural labor. Thievery prevented the restocking of the Black Belt with cattle, hogs and sheep, while fruit and garden vegetables could not be raised. Thriftlessness kept most of the negroes from making economic progress, while generosity to neighbors and kin kept even the industrious from accumulating.

White labor profited by the inefficiency of negro free labor. The high price of cotton stimulated its cultivation in districts where formerly it had not

been grown; the few railroads built during the Reconstruction opened up the white districts, and better methods of farming were introduced and the use of fertilizers became general. While from the black districts many whites moved west to Texas, in the white counties numerous farmers bought land who had never owned it before. Thus the white districts began to encroach upon the Black Belt, and the white farmer no longer fled before the expanding negro labor system.

The misrule of the carpetbag régime seriously affected economic conditions. The expenses of administration were necessarily greater after 1865 than before 1861, for the ravages of war had to be repaired and the negroes admitted, at much expense, to citizenship. Property values had greatly declined, making the tax rate consequently higher than before 1861. Yet upon the already heavy burdens the reconstructionists piled additional ones. Taxation rose rapidly, and the public debts of the states were enormously increased. The Alabama public debt was five millions of dollars in 1860; in 1874 it was thirty millions. The debt of South Carolina was six millions in 1868, and five years later it totaled forty millions. The debt of Arkansas increased five-fold; that of Louisiana ten-fold; that of Texas three-fold. According to conservative estimates the public debt of the ten reconstructed states increased about $132,000,000 during the period 1868 to 1872. In 1874 ten Southern states owed $292,000,000, while the debt of the other twenty-seven states was no more than this amount. Local indebtedness in the South increased likewise.*

Corresponding to this reckless increase of the public debt taxes as steadily rose. In Louisiana the state tax rate rose from three and three-fourth mills

*See articles on State Finances, in this volume.

in 1867 to twenty-one and one-half in 1874, while in New Orleans and Natchitoches the local rate rose to thirty and eighty mills, respectively. The state tax rate was increased three-fold in Texas, and fourteen-fold in Mississippi. In Alabama the rate was raised from two mills in 1865 to six mills in 1868, while local taxes doubled this rate. In 1860 taxes in Montgomery amounted to $30,000, and from 1868 to 1874 to $90,000. Similar increases took place everywhere except in Georgia, North Carolina, and Virginia, which soon escaped from carpetbag rule. The funds secured by taxing and bonding were for the most part misused. Capitalists were afraid to invest in the South under such governments, and property rapidly declined in value. Enormous quantities of land were sold for taxes.

Such were the economic conditions of the Reconstruction. The South, paralyzed by the results of the war, was prevented from a normal economic recovery by the inefficiency of the free negro labor, and by the misgovernment of the reconstructionists.

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THE ECONOMIC RESULTS OF THE RECONSTRUCTION.

The immediate economic effects of the Reconstruction were for the most part bad, but some of the later results have been good. As already mentioned, the state and local governments were burdened with enormous debts, to pay the interest upon which necessitated a heavy tax rate, and so much of the public funds, both state and local, were used to pay interest charges that little could be spared for the proper uses of government, that is to build and repair roads, bridges, buildings, etc. Property steadily declined in value during the Reconstruction and did not rapidly recover afterward. Capital from the outside was slow to come in, owing to the chaotic conditions existing during the period 1865 to 1876 and to the political bitterness and the misunderstandings that continued to exist long after the whites regained control of the government, and taxes in the South were still so high as a result of the Reconstruction extravagance that foreign investors refused to come in. The repudiation of portions of the fraudulent bond issues by several of the states while right and proper, injured the credit of those states and caused financial opinion to remain unfavorable to Southern investments.

The Northern planters and overseers who came South expected too much of both negroes and whites, and nearly all of them failed. Many of them then entered politics. The exodus of Northern planters and politicians during and after the Reconstruction also resulted in timidity among outside capitalists, and kept away immigrants of a better class. The feelings growing out of the Reconstruction were similar in economic effects to those arising out of the

controversy over slavery, and as a result there was as little immigration from the crowded North and from Europe as before the war.

The share system, with the attendant crop lien and mortgage, existed for years after the Reconstruction as the principal method of organizing agricultural industry. The plantation store was a necessary concomitant of the crop-lien system, but the negro as a laborer was treated as an individual and all vestiges of the squad system or group system disappeared. Each laborer stood alone, with no responsibility toward other laborers.

There was during and after the Reconstruction a rapid increase in the number of small farms and the average size of the farms declined steadily. Capital was no longer needed to purchase labor, land was cheap and a poor man could without difficulty become a land holder. The growth of towns and cities in the mineral districts gave opportunity for truck gardening and other varied industries. The experiences of the Reconstruction emancipated the whites from the belief that only a negro could raise cotton and rice or work in the hot lowlands.

One of the most striking results of emancipation and the reorganization of Southern industry was the rapid development of the white districts and the decline of the Black Belt, due to the new conditions affecting both. With the building of railroads through the mineral and timber regions the white farmer was given transportation for crops and fertilizers, and with the improved methods adopted the whites were soon producing quantities of cotton. The economy of large-scale production was no longer possible in the Black Belt where the labor was inefficient and under slight control. Social conditions were such that many of the planters left the country for the cities, others were sold out under mortgages,

and poor overseers were left in their places. To some sections, such as the Atlantic Coast, the white planters have not returned. The Black Belt never again produced as much cotton or rice per capita as before 1860. In 1880 a careful study of cotton production in all the cotton states was made by the United States Census, and Dr. E. A. Smith, the investigator in Alabama, a typical state, summarized the results as follows:

(1) That the blacks were most thickly settled on the most fertile soil, that here bad farming methods prevailed along with the credit and crop-lien system, that the soil was being rapidly exhausted, and that here the least product per acre was found; (2) in sections where the races were about equal the best system was found, the soils were medium in fertility, the farms small but well cultivated, and fertilizers were used; (3) that whites only were found on the poorest soils, but these by industry and by improved methods could compete in production with the blacks on the best soils. In general that the product per acre and per capita by white farmers is greater than the product by blacks. The decline of the Clairmont plantation opposite Natchez may be taken as typical of Black Belt conditions. In 1860 the plantation produced 1,000 bales of cotton and 8,000 bushels of corn; in 1875 it produced 500 bales of cotton and no corn. In general terms it may be said that the density of the colored population is a sure sign of a fertile soil and of a low per capita production, that the fertility of the soil being equal, per capita and per acre production varies inversely as the proportion of the colored population to the white. In those black districts, chiefly in Mississippi and Louisiana, where the whites still exercise control of industry, the results of free negro labor are better.

But the white has gained steadily on the black.

In 1860 it was estimated that the whites produced 12 per cent. of the cotton crop; in 1883, 44 per cent.; in 1885, 50 per cent.; and in 1893, 70 per cent. The last estimate is probably too large. The proportion of whites who work on farms steadily increased and by 1880 the numbers of the two races so employed were about equal.

Recent statistics show that the white farmer is increasing his economic lead over the negro. In 1900, in Lowndes county, Mississippi, where the land is valued at $9.83 an acre and there are three negroes to one white, the average per acre production of cotton is one-third of a bale; in Jones county, where there are three whites to one negro and land is worth $2.85 an acre, half a bale to the acre is produced; in Noxubee county, with five negroes to one white, it takes three and one-half acres to make a bale; in Union county, with three whites to one black, it takes only two and one-half acres to make a bale.

The great cotton-producing states are not the old slave states, but the new states where white labor prevails, such as Texas, Oklahoma, etc. The centre of cotton production has drifted gradually westward since 1865. The rice industry of Georgia and South Carolina, dependent upon negro labor, has steadily declined while the production of rice by whites in Louisiana and Texas has steadily increased.

The negroes who were scattered through the white counties made and continue to make progress. Stimulated by the example of the whites, they have acquired land and a number of them have become farmers on a small scale. In general the Black Belt is getting blacker, though there is a steady drain of the more intelligent negroes to the cities and to the North.

The whites have made progress in other things than cotton and rice culture. They opened the

mines of the Southern Appalachians, cut the timber, built and operated railroads and factories, and developed commerce. Truck gardening later developed, and also fruit growing. Largely because of the decline of the plantation system the white districts have developed the new cities—such as Atlanta and Birmingham—the railroad systems, the mines and factories. Many conditions in the South continue to hamper the white as well as the black worker, but still it may be said that the most important single result of the destruction of the slave-labor system was the economic emancipation of the average white man.

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LAND.

AREAS OF CULTIVATION IN THE SOUTH.

IN the forty-four years that have elapsed since the close of the war a tremendous transformation has taken place in the land areas of the South. Then, by far the larger part of this area was forest land; to-day, forests capable of immediately affording merchantable lumber occupy but a small fraction of the total land surface of the South. The excellence of the lumber made from the long-leaf pine, the large profits from the lumber business, and the almost universal desire of farmers to clear away the timber so as to be able to take fresh land into cultivation, have resulted in probably the most rapid and reckless destruction of forests known to history.

By no means all of the area from which the original forest has been stripped is now in cultivation. Much of it is now practically unproductive cut-over land, or waste, bare, uncultivated old fields, or pasture lands. The nine years that have passed since the taking of the last census render it impossible to institute exact comparisons between the acreage cultivated at the close of the war and the area now under the plow.

In the following table a comparison is made between the improved land included in farms in 1870 and the improved land included in farms in 1900, taking as 100 the total area of farm land in each state at each date.

PER CENT. OF FARM LAND IMPROVED.

	1870	1900
Virginia	45.0	50.7
Maryland	64.6	68.0
Kentucky	43.4	62.5
North Carolina	26.5	36.6
South Carolina	24.9	41.3
Missouri	42.1	67.4

	1870	1900
Tennessee	34.9	50.4
Indian Territory	....	42.1
Oklahoma	....	35.1
West Virginia	30.3	51.6
Georgia	28.9	40.2
Alabama	33.8	41.8
Florida	31.0	34.6
Texas	16.1	15.6
Louisiana	29.1	42.2
Arkansas	24.5	41.8
Mississippi	32.1	41.6

From this table it is evident that the area of cultivation on the land included in farms greatly increased in the period between 1870 and 1900.

The regions making the greatest gains in cultivated areas since 1865 are the following:

1. Texas and Oklahoma, through the westward extension of settlement and cultivation, and the change of large areas in these states from cattle ranges into plowed fields.

2. The long-leaf pine belt near the coast, where the farmer followed the lumberman.

3. The Piedmont section. The area of cleared and cultivated land was pushed to the foot of the Blue Ridge and the Allegheny Mountains after it was found that the use of commercial fertilizers made possible there the earlier maturity of cotton and hence its profitable cultivation.

Among the crops extensively cultivated in 1865 and still widely grown in the Southern states, the most rapid extension of areas occurred with cotton, cereals, sugar, and tobacco. The chief incentive to clearing throughout the greater part of the region mentioned was the desire to grow more cotton. In restricted regions in Virginia, North Carolina, Kentucky, and Tennessee, much of the clearing or destruction of forests was done for the purpose of growing larger areas of tobacco, a crop for which fresh land was considered even more important than for cotton.

Between 1865 and 1909 the area cultivated in sugar cane in Louisiana has increased many fold, without making any considerable demands on the wooded area, this extension being largely a reoccupation of the extensive area devoted to sugar cane in the fifties.

Most phenomenal in its rapid conversion of cheap grazing or waste land into extensive areas of highly valuable cultivated and irrigated fields is the rice industry of southwestern Louisiana, and southeastern Texas, which is a development of the last three decades.

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CHANGES IN THE AGRICULTURAL METHODS AND PLANTATION SYSTEMS OF THE SOUTH.

THERE is a strong contrast between agricultural conditions in the few years immediately following 1865 and those in the first decade of the Twentieth century.

The prevailing method on cotton plantations for some years after the war and during the Reconstruction was employment of negro labor, chiefly for wages or on the share or "cropping" system. In either case the laborer worked under the close super-

vision of the landowner or of his hired superintendent. Now most of the negro laborers employed in cotton production are renters, working with little or no supervision. Then the laborer was dependent upon the landlord for his food and other supplies, and was encouraged to produce as large a proportion of these as practicable. Now, through the operation of the credit system and crop-lien laws, the renter usually has little or no dealing with the landlord, but generally draws his supplies from a merchant. This divorcement of the landlord from practically all voice in the management of the land and from direction of the tenant's labor is largely responsible for the impoverishment of the soil of the South.

In spite of this unnecessary tendency for rented Southern fields to deteriorate, the yield of cotton and of tobacco per acre has been fairly well maintained or increased. This anomaly is explained by the fact that the use of commercial fertilizers has rapidly increased during the last four decades, and this has masked the effects of declining fertility due to the ill-treatment of many fertile soils. The Southern states in 1907 used 2,786,430 tons of commercial fertilizer.

One effect of the general use of fertilizers on cotton east of the Mississippi River has been greatly to extend the area in which cotton can be profitably cultivated. Fertilizers hasten the maturity of the cotton plant; hence, cotton culture has spread well up into the foothills of the mountains. Fertilizers make cotton culture profitable also on some of the sandy soils near the coast where without them the soil was considered too poor for cultivation. The regions thus conquered for cotton by fertilizers lie well beyond the belt in which slave owners settled before the war, and have been occupied chiefly by whites attracted by the relatively cheap price of land.

This, together with the westward extension of cotton culture, has resulted in another contrast between 1866 and 1908. Then by far the greater part of the cotton crop was produced by negroes, while now more cotton is produced by white than by negro labor.

Though there was always in the South an insufficient production of home supplies by the average farmer and planter, the decrease in the production of food materials or home supplies marks a change in plantation methods of profound economic importance. Many causes have contributed to this condition. Among them we may note the following:

1. The almost exclusive use of cotton as the basis of credit to farmers, and the absence of adequate working capital in farming.

2. The want of foresight, a tempermental characteristic of a large body of the more ignorant and thoughtless class of negro renters.

3. The general prevalence of the renting system with its exemption from direction and control. This reduces the number of "hands" working for wages under the direction of those who have most foresight and intelligence and most interest in building up a more diversified and restorative system of agriculture, by which food crops would be grown.

4. The insufficiency of home supplies is partly due also to the indifference or approval of the advancing merchant, who, to sell supplies at a profit from his store, usually urges that the maximum acreage be put in cotton.

5. The greater familiarity of the body of agricultural laborers in the cotton belt with cotton culture than with diversified agriculture.

6. The almost universal system of annual or short term rentals and the absence of any general system of valuing the young grain crops that might be grow-

ing at the end of the renter's period of tenancy. This in many states keeps the more enterprising class of tenants from growing fall-sown crops, such as wheat or oats.

In the cotton belt, therefore, the tendency among a great number of the unprogressive farmers and laborers has been to rob the soil, to drift into a one-crop uneconomic system of farming, and to neglect the production of home supplies.

Alongside of this broad sluggish current of shiftlessness, flows in an exactly opposite direction a narrower, but swifter, current of progress, which embraces those farmers whose methods are an improvement on those of their fathers. In every Southern state, and in almost every locality of the state, are found some who are yearly making their lands richer, their harvests greater and more varied, and who are bringing their thought and practice more into accordance with the teachings of scientific agriculture. Evidence of their improved practice is found in their larger yields of cotton, corn, and other crops, through the judicious use of commercial fertilizers, rotation of crops, and more effective agricultural implements. Agricultural progress is indicated also by the fact that the number of letters received annually from farmers by the agricultural experiment stations is many times the number of such inquiries in the decade following the establishment of these institutions in 1888. So great has become the demand for the publications of the agricultural experiment stations, that the printing bills now overtax the financial resources of these institutions. Likewise the subscription lists of the leading agricultural papers of the South have increased several hundred per cent. within the past ten years.

As a result of this agricultural awakening, every Southern state from Virginia to Texas has laws rela-

tive to the teaching of the subject of elementary agriculture in the public schools.

Other results are the official inspection of fertilizers, stock foods, and seeds used by the farmer, to the end that he may be protected against fraud, and the fact that the production of home supplies is now the rule on the best managed farms.

New food-producing industries have sprung up in scattered communities throughout the South, notably, trucking and fruit growing; and peanut culture has spread in Virginia, North Carolina, and Texas; bee culture in Texas and elsewhere, and the dairy and poultry industry everywhere; also the breeding of the highest types of cattle, horses, and sheep, especially in Kentucky, Tennessee, and the growth of the apple production; and the last decades have witnessed the evolution of the rice industry in the southwestern part of Louisiana and in the southern part of Texas, where by far the greater part of the annual production of about 600,000,000 pounds grows. Within the last three years a still newer rice-growing region is developing in Arkansas near the Mississippi River.

Between 1870 and 1900 South Carolina, Georgia, and Florida more than doubled their acreage in sweet potatoes; Georgia made five-fold increase and Alabama a still greater increase in the production of syrup, each of these two states in 1900 approaching a yield of 4,000,000 gallons.

In the years immediately following the war, commercial horticulture was little more than market gardening on a very limited scale for the supplying of the local demand around the small Southern cities. Now the South is the truck garden for all the great Northern cities, and many millions of revenue have been returned to the Southern farmer.

In 1909, according to press reports, a limited area

in southern Texas shipped more than 2,800 carloads of onions. In 1907 the little town of Crystal Springs, Mississippi, shipped 1,054 carloads of vegetables, of which 660 were tomatoes. It is estimated that the South ships annually more than 5,000 carloads of tomatoes.

Among the centres of truck-farming of to-day are Norfolk, Wilmington, Charleston, Mobile, New Orleans, and a number of shipping points in Florida and Texas.

The production of special fruits, notably peaches and strawberries, and in Florida, oranges and other citrus fruits, and pineapples, has affected special localities rather than the entire South.

In a single recent year 6,000 carloads of peaches were shipped from Georgia, though the industry is by no means confined to this state.

Another great change and improvement is the increased yields of staple crops, per acre. In spite of the fact that the average yield is lowered by the large mass of farmers who have not yet been reached by the leaven of improved methods, there is now more wheat and corn produced per acre than was the case on the fresher soils four decades ago. The following comparisons of mean average yields per acre exemplify this general truth:

MEAN AVERAGE YIELD PER ACRE.

	1866–7–8	1905–6–7–9	Per Cent. increase in Productiveness.
So. Carolina, corn, bushels per acre	8.6	11.8	37
Alabama, corn, bushels per acre...	12.0	15.3	28
Tennessee, wheat, bushels per acre	6.8	10.4	53
Kentucky, wheat, bushels per acre	7.7	12.3	60

Were it possible to institute comparisons between the yields secured by the best farmers then and now, the contrast would be even more striking in favor of the modern disciples of scientific agriculture.

The following table shows the size of farms in the

Southern states according to the census of 1870 and the corresponding size as shown by the census of 1900:

AVERAGE NUMBER OF ACRES IN FARMS.

	1870	1900
Virginia	246	118.6
Maryland	167	112.4
Kentucky	158	93.7
North Carolina	212	101.3
South Carolina	233	90.0
Missouri	146	119.3
Tennessee	166	90.6
Indian Territory	..	159.7
Oklahoma	...	251.5
West Virginia	214	114.7
Georgia	338	117.5
Alabama	222	92.7
Florida	232	106.9
Texas	301	357.2
Louisiana	247	95.4
Arkansas	154	93.1
Mississippi	193	82.6

From the above figures it may be seen that the apparent size of farms in the South was much smaller in 1900 than thirty years before. This condition is more apparent than real and is explained by the fact that the census enumerates as a "farm" each tract of land cultivated by a renter, although there are often many renters on a single plantation; hence the above figures give but little idea of the size of farm holdings, though they indicate a great increase in the number of tenant farmers during the period under discussion.

The most profound change that agriculture in the western part of the cotton belt has experienced since the war has been effected by the Mexican cotton boll weevil. This small insect-enemy of cotton crossed the Rio Grande into Texas in 1892, advanced steadily northward through Texas and into Oklahoma, and eastward, until at the close of 1909 its vanguard occupied the southern part of Mississippi, within a few miles of the Alabama line. The extension of the cot-

ton boll weevil over the entire cotton belt is confidently expected by all authorities.

This pest has caused many farmers to abandon cotton culture, has contracted credit in the regions affected, and has brought a veritable panic in its wake. It has greatly reduced the total cotton crop in the area where it is present, a loss which is veiled by the rapid extension of the cotton-growing area further into the western part of Texas, a part of that state which has not yet been invaded. As partial compensation for the havoc wrought in cotton production, credit, and land values, the boll weevil has hastened some beneficial reforms in agricultural practice. It has enormously stimulated the production of truck and fruit, the development of livestock farming, and all other forms of diversification. Moreover, the presence of the boll weevil has made it necessary that every farmer in that region who would continue to grow cotton with profit should adopt more scientific methods of farming, including better preparation, intensive cultivation, early planting of rather early varieties of cotton, and rational fertilization,—all with the aim of causing the cotton plant to form early in the season a large number of bolls (fruits) before the excessive multiplication of the weevil occurs, as it does in the latter part of the growing season.

The result of the boll weevil invasion has been to drive out of the business of cotton growing the least intelligent and least progressive farmers. The injury has been most felt by those communities in which a large proportion of the population consists of negro renters. For a few years after the advent of the boll weevil in a section, there is panic among capitalists, laborers, and landowners. Then, in communities with a sufficiency of labor, floating capital, and transportation facilities, readjustment is ef-

fected; improved methods of cotton culture are adopted; larger amounts of other farm products are produced; the panic is dissipated, the value of land rises; and diversified farming succeeds the former one-crop system.

Another condition that within the past few years has begun to influence Southern agriculture in the direction of the production of more and better livestock is the eradication of the Southern cattle tick. This common parasite on cattle, closely related to the true insects, is the only known means of conveying the microscopic organisms that produce tick fever, a disease that causes more sickness and deaths among Southern cattle than all other diseases combined. The annual loss to the stockmen of the South, caused by this parasite, has been estimated at more than $40,000,000. Recently, especially since 1905, the national and state governments have been waging war against this pest. As a result, the region chiefly in and near the Alleghany mountains, that has been freed from ticks within the last decade has an area about equal to that of the combined areas of South Carolina and Mississippi. Here, in future, cattle can be raised in larger numbers and at much greater profit than formerly. The extension of the livestock industry is always accompanied by a more diversified and profitable agriculture.

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STATE AND FEDERAL LANDS AND LAND LAWS IN THE SOUTH.

The close of the war, in 1865, found, in addition to those parts of the public land policy which had been long established, certain new factors, the operation of which had commenced during the war, as the result of agitation begun in the preceding period.

1. The Homestead Act was passed in 1862, and modified in 1864. This was the final expression of the policy of rapidly settling the public domain, to which, in the political strife of the years before the war, the South as a section had offered steady opposition. Buchanan's veto, in 1859, of the homestead bill passed that year, postponed the successful accomplishment of that legislation until the administration of the Republican party.

By 1865, settlements under the provisions of the Homestead Act had already made considerable progress in the West; but in the public land states of the South there were, apparently, no homestead entries prior to 1866, and in that year only 634 acres in Alabama were thus entered. In the next few years, however, more use was made of the privileges conferred by the act.* As to the economic effect of the Homestead Law on the Southern land states, the influence which it exerted on the size of plantations or farms, and the extent to which the emancipated negroes availed themselves of it, little infor-

*The following table shows the total acreage of homesteads to the year 1880:[1]

	Homesteads. Acres.	Final Homesteads. Acres.
Alabama	2,306,550.80	381,425.21
Arkansas	3,321,318.55	975,884.69
Florida	1,448,097.02	192,703.49
Louisiana	959,627.66	217,524.57
Mississippi	927,031.23	162,080.06
Total for South	8,961,625.26	1,929,618.02
Aggregate for all states and territories	55,667,044.95	19,265,337.06

[1] *Public Land Commission*, Part IV, p. 355.

mation seems to be obtainable. That the matter was in the minds of the leaders of the Reconstruction Congresses would appear from the fact that a special act of Congress in 1866 brought the public lands in all the Southern land states exclusively under the provisions of the Homestead Act.

2. The second act of the war period—that giving grants of land to the states for agricultural colleges—had also been debated prior to the war, and again the South, as a section, had opposed the measure. A bill for this purpose, too, had been vetoed by Buchanan in 1858. As in the case of the Homestead Law, this Southern opposition was based partly on sectional, but chiefly on constitutional grounds. In the years after the war, however, the extension to the Southern states of the provisions of the Morrill Act of 1862 was an important step in the rebuilding of the educational system. The South has also shared in the benefits of the supplementary act of 1890, which appropriated $15,000 for that year, and a sum increasing $1,000 per year up to $25,000, thereafter.

3. The third measure of the public land system which, in 1865, was in the height of its course was the granting of land in large quantities to railroads. Like the two preceding acts to which we have referred, this also had been debated before the outbreak of the war. In Federal grants to railroads, and to internal improvements generally, the South, though generally opposed to this policy on constitutional grounds, had shared, but to a much smaller extent than either the North or West.* No Southern public land state had refused its share of the 2, 3, and 5 per cent. funds given to the states for roads on their admission to the Union, nor grants of land for internal improvements of various kinds. The South,

*Ballagh, J. C., *Tariff and Public Lands*, 240.

indeed, had been the first to enjoy the fruits of the plan of granting swamp-lands to states* and of donating land to settlers on frontiers where military service was necessary.†

It was, however, the decade 1850 to 1860 which witnessed the breaking down of constitutional barriers, in the struggle of the states for grants of lands for railroads. So long as the Illinois Central bill was urged by Douglas in the interest of his own section, the Southern congressmen opposed it; but when, in 1850, there was added an amendment to give to Alabama and Mississippi a large grant for the Mobile and Ohio, a change in many votes from the Gulf states helped to pass the bill. In the enormous grants of land made to the states for railroad purposes during the next ten years the Southern public land states shared largely. Had the political crisis been delayed until more of these roads were completed, some effect upon sectional and party lines might have been apparent.

Finally, during this stormy period, the project of a trans-continental railroad had been mooted; but the South demanded that such a railroad should be so located as to put its benefits within the reach of that section. "From 1850," says Sanborn, "the question of a Pacific railroad had been one of route, not of constitutionality." In 1862, when the South was no longer able through its representation in Congress to offer a controlling opposition, the first grant to a corporation was made to the Union Pacific Railroad. In 1864 this was extended, and grants were made to the Northern Pacific and other trans-continental roads. In 1866, when the Southern states were restored to the Union, the Atlantic and Pacific and the Southern Pacific received large

*Louisiana, 1849, 1850; Arkansas, 1850, etc.
†Florida, 1842.

grants of land, while five years later the last of the trans-continental railroad land grants was given to the Texas Pacific. When public sentiment changed, and the policy of land grants to railroads was abandoned, many of these grants were forfeited by the failure of the corporations to complete the stipulated work. This was true especially of the Texas Pacific grant, but, through the success of other Southern trans-continental lines, especially the Southern Pacific, and with the coöperation of the state land grants of Texas, the South has shared in the destruction of the American frontier.

In comparison with their participation in the national land system, the administration by the several states of their own public lands has been, since the war, of relatively less importance. Most of the Southern states, indeed, maintain or have recently maintained land-offices. In the public land states these have charge of records and manage the lands which have been received by the state from the national domain through the internal improvement grants, swamp-land grants, etc., and also lands which are forfeited for non-payment of taxes. In Tennessee, a state outside of the national system of land administration, there are now six land-offices, but they transact little or no business. The same condition probably prevails in most of the older states of the South. The land-office is sometimes connected with a bureau or commission of immigration.

To one state, of course, the public lands are still of the greatest importance. This is Texas, where, notwithstanding liberal homestead, railroad, and educational grants, an enormous amount of land is still subject to future disposition.

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THE INFLUENCE OF REAL PROPERTY LAW IN THE ECONOMIC DEVELOPMENT OF THE SOUTH.

THE chief economic problem in connection with the law of real property that confronts any Anglo-Saxon community is the safe removal of feudal shackles. In spite of the fact that the feudal conditions out of which the common law of real property had its rise never existed in this country and ceased to exist in England over three centuries ago, it is yet true that much of the great expense, delay, and uncertainty that now burdens transactions affecting land is due to the clinging remains of the feudal system. But the problem of striking off these shackles is not an easy one, for the system of real property law is so complex that a well-intended statute aimed at a feudal obstruction may take effect in some unexpected way so as to render insecure existing titles to real estate, a result of all others most feared in any community. The history of real property law is full of such mistaken reforms.

In this struggle with the lingering bonds of feudalism the Southern states have as a rule been rather more cautious and conservative than have the North-

ern and newer Western states. The most obvious economic anachronism in connection with real property law is the cumbersome, tedious and expensive system of land transfers which grew up under common law methods of conveyancing, and is still in use in most Anglo-Saxon states. In many of the English colonies, in eight of the American states, in Hawaii and the Philippines, a simplified system of expeditious land transfer by registration of title, known as the Torrens system, has been adopted, but this much-needed reform has been repudiated by such of the Southern states as have not ignored it.*

The preëminence given by the feudal system to the man as being capable of bearing arms and responsible for the performance of feudal services, and his consequent control of the wife's realty during coverture, has at last almost faded away throughout the United States, although in five of the Southern states a last lingering feudal restriction prevents the wife from conveying her real estate without the husband's joining in the deed,† and in two others she cannot by her sole conveyance deprive him of his curtesy.‡

The right of the husband to curtesy, or a life estate in his wife's land in case he survives her after issue born, had its origin in exactly the same feudal necessity for a responsible fighting tenant of the freehold, and has no other justification whatever. It has been abolished in many of the states as obsolete and meaningless, but it still exists in all the Southern common-law states save four,§ as a needless burden upon the commercial use of their lands by married

* The most satisfactory treatise upon the Torrens System is to be found in a paper read in 1908 before the New York State Bar Association, by Henry Pegram, and printed in the *Thirty-First Annual Report* of that Association.

† Alabama, Florida, Maryland, and Missouri. See 1 Washburn, *Real Property* (6th ed.), 299, *et seq.*

‡ North Carolina and Virginia.

§ Florida, *Rev. St.* 1892, §1820; Georgia, *Code* 1895, §3095; Mississippi, *Code* 1892, §2291; South Carolina, *Code* 1902, §2670. In Kentucky curtesy is modified. See *Stat.* 1894, §2132.

women. In Louisiana and Texas the community system of property holding by husband and wife, as developed under the laws of France and Spain, is in force. This system is far preferable to that of the common law, even with its modern improvements. Another peculiar rule of property, the famous Rule in Shelley's Case, has its origin in this same feudal necessity. By this rule a deed or devise to a person for life with remainder to his heirs, is construed to give the designated life tenant an absolute fee, and nothing to his heirs, who being unknown and uncertain, were naturally not regarded with favor as feudal tenants. The reason for this rule, never very good, has long since vanished altogether, and the rule itself has been abolished by statute in most of the American states. But in seven of the Southern states* it continues triumphantly to defeat the clearly expressed intention of testators and to destroy titles which in all reason should be good, to the great confusion of the laity.

The right of dower, by which at common law the wife was entitled after the death of her husband to a life estate in one-third of the lands in which her husband had owned during coverture a legal estate of inheritance, has been retained in all of the Southern states, save Louisiana and Texas, where the community system prevails, and in Mississippi, where it has been abolished and provision made for the wife by making her co-heir with her children or sole heir in case her husband dies without children. Being a rule based upon good sense, economically thoroughly sound, and distinctly creditable to the common law, it has been beneficially extended to equitable interests of the husband. In some of the Southern states the widow's dower has been extended to one-half of

* Arkansas, Florida, Maryland, Mississippi, North Carolina, South Carolina, and Texas.

the deceased husband's lands in case he dies without children.

The homestead acts, existing in all of the Southern states, have undoubtedly proved of great benefit to society in preventing creditors from driving unfortunate debtors from their homes and into dependency and pauperism for themselves and their families. Another remedial modification of a harsh rule of the common law that has undoubtedly proved economically beneficial is known as the Betterment Acts, now generally adopted throughout the United States.* At common law when an occupant of land was ejected by some one setting up a superior title, he received no compensation whatever for such improvements as he may have made, even though the value of the property may have been thereby enhanced many fold, unless, perchance, the plaintiff had been unwary enough to go into a court of equity. But by the Betterment Acts the person occupying and improving land with a *bona fide* belief in the validity of his title, will, upon ejectment, be allowed the full value of the enhancement of the lands in suit by reason of the improvements made thereon. These acts have robbed slight or imaginary defects in land titles of many of their terrors, and encourage the improvement of lands that might otherwise remain useless to the community.

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* For an example of the Betterment Acts, see Pollard, *Virginia Code* (1904), §§2753, 2754.

LABOR.

LABOR ORGANIZATION IN THE SOUTH.

THE Civil War caused the disintegration of the comparatively few organizations of workingmen in the Southern states. As industry revived, however, unions were re-established here and there, and since 1896 a rapid growth in the number and strength of the local unions has been experienced. Particularly in the larger cities of the South, namely, Baltimore, St. Louis, Washington, Atlanta, New Orleans, and Birmingham, strong unions exist in many trades. The characteristic features of Southern trade unionism, if we exclude the border states of Maryland and Missouri, may be summed up under three heads:

1. Since the Southern states are predominantly agricultural, even if the Southern union were as strong, trade for trade, as the unions of the middle states, the unionists would still be a small part of the total laboring population. As a consequence, the Southern unions cannot command widespread popular support in a legislative campaign or in an industrial conflict.

2. The presence of large numbers of negro workmen has been a source of serious weakness to some unions. The reluctance of the white workmen to admit negroes into their unions has led several of the

larger national unions, particularly in the building trades, to try the experiment of organizing negro artisans into separate local unions. But as yet the negro workmen are not well organized and in more than one industrial struggle they have been used effectively as strike breakers.

3. Although in nearly all of the distinctively city trades, namely, printing, building, etc., a fair degree of organization exists; in the two most important industries of the South, cotton manufacturing and coal mining, unionism is almost entirely absent. The effect of this on the strength of Southern trade unionism is marked. The high degree of organization attained in most trades in the middle states is largely due to the active support given to the trade union cause by the well organized mine workers; in New England the loosely but effectively organized textile workers are a source of strength to the whole trade union movement. The attempts to organize the workmen in these two important trades constitute the chief part of the history of trade unionism in the South in recent years.

Organization among the operatives in the Southern cotton mills was promoted from 1898 to 1902 by the Textile Workers' International Union of America. Two extensive strikes resulted from these efforts. In October, 1900, a strike in Alamance county, North Carolina, one of the chief centres of the industry, involved several thousand workers, and in 1902, an even more important strike occurred at Augusta, Georgia, in which the national organization expended considerable sums. Neither strike was successful, and the local unions involved fell to pieces. In 1902 the national union, now known as the United Textile Workers, sent an organizer into the Southern field. The report of this official in 1903 set forth the insuperable difficulties encountered in organizing

119928

local unions. Many of the Southern mills are located in small towns and the mill owners, who in many cases own the houses in which the operatives live, are able to exert a powerful influence against the formation of a union. Laboring under these difficulties, the organizer had been able to do very little, and since 1903 the national union has practically abandoned its attempts to organize the Southern operatives. The few local unions now active have been organized either through local initiative or as the result of the activities of the organizers of the American Federation of Labor.

The history of organization among the mine workers of the South has not been greatly dissimilar to that of the textile workers. From 1898 to 1902 the prosperity of the coal mining industry led to a rapid increase, particularly in the middle states, in the strength of the United Mine Workers, the national organization of coal miners. As a result attempts were made to organize the men in the hitherto practically unorganized coal fields of the South. The president of the United Mine Workers, in 1899, reported to the convention that during the year the membership had been built up from practically nothing in all these fields until on Jan. 1, 1899, there were 667 members in Indian Territory, 720 in Arkansas, 524 in Tennessee, 375 in West Virginia, 2,304 in Alabama, and 1,672 in Kentucky.

From that time until the present, the union has annually expended large sums of money in efforts to organize the Southern miners. The results of this campaign have differed greatly in the different coal fields. It will be convenient, therefore, in narrating the history of the movement, to follow the division into districts which is made by the union for administrative purposes, namely, District 16, Maryland; District 17, West Virginia; District 19, Tennessee;

District 20, Alabama; District 21, Arkansas and Oklahoma; District 23, Kentucky.*

In two of these districts, Arkansas and Kentucky, the miners are as well organized as in Indiana or Illinois. The union was not strong in Arkansas until 1903, when an agreement was entered into providing for complete recognition. The union has maintained its position since that time. In the Kentucky field, the union as early as 1901 was in full control, with the exception of the mines in Hopkins county. A strike against the operators in that county in 1901 was unsuccessful, but in 1908 another strike resulted in the unionizing of the mines.

In the four other Southern fields the Mine Workers have been far less successful. In the Maryland field strikes in 1900 and 1903 gave the union a temporary appearance of strength, but since the latter date the union has been entirely without influence in the district. Of more than 7,000 workmen employed, in 1908, only sixty were members of the union. The West Virginia district—the most important coal field in the South, judged by the number of workers—has had a more varied history. As early as 1897 the Mine Workers called a strike in that state, but were unable to sustain their position. During the year 1901 strenuous efforts were made to organize the district, with the result that by 1902 the number of unionists had considerably increased, and in 1902 a general strike was called. It was unsuccessful over the greater part of the field, but an agreement was reached with the operators of the Kanawha region.

*The following table shows the membership of the United Mine Workers in each of these districts on November 1st of each year from 1899 to 1909.

Districts.	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908
16 (Md.).....	450	1330	485	514	1786	112	246	80	106	66
17 (W. Va.).....	421	870	1357	2212	7786	6210	6155	2413	3239	2081
19 (Tenn.).....	2737	3551	4341	5018	4869	3063	2269	2651	2782	1483
20 (Ala.).....	3098	6713	9191	10668	10924	3168	3215	4047	3558	762
21 (Ark. & Okla.)	1898	818	1584	1745	11747	12876	12530	11424	12137	16005
23 (Ky.).....	1451	1919	2281	3043	2469	2571	2942	3758	4356	5690

In 1904, however, the United Mine Workers lost control of part of this field, and the membership in West Virginia in 1908 was barely one twenty-fifth of the total number employed. One of the chief difficulties encountered throughout has been the distrust of the union entertained by the large number of foreign born workers employed in the district.

The Tennessee and Alabama districts form a single competitive field and their labor history has been similar. Organization went forward rapidly in both states from 1899 to 1903, when both districts were well organized. In the latter year a threatened strike in Alabama was averted by submitting the questions at issue to a board of arbitration, but in 1904 a strike of the miners in the employ of the furnace companies occurred. The strike was protracted for eighteen months, but was unsuccessful. As a result the membership of the union in Alabama sank from 10,924 in 1903 to 3,186 in 1904. The membership in Tennessee fell from 4,869 in 1903 to 2,269 in 1905. In both fields the miners working for the "commercial companies" (*i. e.*, companies mining coal for market) were well organized until 1903, when another large strike occurred in Alabama. Although the National Union spent approximately half a million dollars in support of the strike, the operators were able to work their mines. The membership of the union in Alabama fell in 1908 to 762. The power of the union in Tennessee was much weakened by the disastrous outcome of the Alabama strike, and the membership in that field sank in 1908 to 1,483.

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LABOR AND LABOR CONDITIONS.

When the war ended in 1865 the labor system of the South was disorganized. The best of the white laboring force had been called into military service and several hundred thousand had been killed, wounded or injured in health. The sections of the South from which the majority of the soldiers came were those most ravaged by the armies. Markets, prices, capital—all were so uncertain in the years immediately following the war that the white workers found it difficult to settle down to steady industry. Under other conditions there would have been heavy emigration to the North and West. But the prejudice against Southern people in the North, and the test oath which prevented the homesteading of lands in the West by Confederate soldiers, operated to keep in the South the bulk of its white people, though since 1865 that section lost by emigration about 2,000,000 of its people.

The number of annual laborers was increased for several years by the accession of former professional men, former independent farmers and planters, and by white women and children. Planters desirous of introducing Northern methods endeavored to secure laborers from the North or abroad but failed. The unsettled problems of the South prevented the coming of the white immigrants.

Negro labor, once the main dependence of the South, was almost totally without organization. Four million negroes recently freed could scarcely be expected to settle down quickly to a laborious existence. Most of them desired to test the reality of freedom by roving about, enjoying new amusements and unlimited leisure, with freedom from white supervision. Attracted by the presence of the Federal

soldiers and by the officers of the Freedmen's Bureau large numbers of the blacks flocked into the towns where they lived under such unfavorable conditions that many were effectually put out of the producing class by death and disease. To many of the race, freedom meant release from work, and this belief was fostered by the policy of the Freedmen's Bureau in its indiscriminate giving of food and clothing, and in its handling of the confiscated Confederate property. The latter led to the "forty acres and a mule" delusion which for years disturbed the negroes.

The blacks did not take kindly to white supervision after 1865. They, as a rule, objected to overseers, leaders or drivers, plantation bells, etc., as remnants of slavery. The white employers and the black laborers spent years experimenting toward a basis for a labor system. The Southern legislatures in 1865-66 endeavored to frame laws to regulate negro industry, but owing to the interference of the Freedmen's Bureau and the army authorities, this attempted plan was never carried out. All sorts of schemes were tried by planters and workers, and all proved to be unsatisfactory; but finally there was general agreement upon a wage system for floating workers, and the share system in its various phases for the steadier ones. There was constant complaint, however, that the wages "hand" would lay off after each pay day, and that the easy terms of the share system of agriculture encouraged carelessness and thriftlessness in the negro, and caused him to confine his work to one crop, thus failing to develop skill in varied industries.

During the Reconstruction period, in spite of unfavorable influences, white labor made progress. The decline of cotton raising in the former slave districts gave the white counties their opportunity, and

they were further aided by the development of railroads through the hill and mountain country. More and more whites went into cotton raising. The development of Texas was accomplished mainly by white labor. This state in 1859 produced one-twelfth, and in 1869 one-ninth of the cotton crop. In both years it was the sixth in rank of the cotton-producing states. In 1879 it made one-seventh of the cotton and ranked third among the cotton states. The white districts all over the South began to raise cotton, so that in 1876 the proportion of white laborers to black engaged in cotton production was as two to three, while in 1860 the proportion had been one to eight.

Very slowly during the Reconstruction did the mass of black laborers settle down to regular work. Most of them moved from month to month or from year to year. Race feeling was so irritated by the political troubles as to interfere with the normal operation of economic forces. Negro labor in the Black Belt continued to be without skilled white supervision; its efficiency declined and did not recover, so that in rice, tobacco, and cotton, the former slave staples, the negro produced less and less. The cotton crop, which in 1859 was 5,387,000 bales, fell to 3,012,000 in 1869, a decline due chiefly to the inefficiency of negro labor. A slight increase in the efficiency of black labor, together with the increasing number of whites engaged in cotton making, brought the production to 5,755,000 bales in 1879. The Census of 1880 showed that, as agricultural laborers, the whites were superior by far to the blacks. Acre for acre the whites produced more, even though their land was less fertile. The negro counties have never again equalled the production of 1860.

The best results of negro industry were secured under white supervision. The statistics of each

census after 1865, when analyzed, indicate that in the densely populated negro districts where the fertile land was still high priced the product of negro labor was per acre less than the product per acre in the white counties, where the soil was poorer but where better agricultural methods were used. The production of rice and long staple cotton on the coasts of Carolina, Georgia, and Florida soon declined to insignificant proportions, owing to the inefficiency of negro labor. A living was too easy to get in these regions, and the blacks would not work with regularity. In general the labor of the blacks in the Black Belt is still insufficiently supervised, but in the white counties the black laborer, under white direction, has more successfully held his own. The drift to the cities and to the North has, however, taken many of the best negroes from these districts.

The negro since 1865 has had a monopoly or a fair share of nearly all the minor occupations calling for slight skill. But during the last twenty years the negro artisans have been slowly losing in some of these occupations before the invasion of the whites. The last census showed a loss in nine fields of industry. Where the demand for work is keen, the whites are beginning to demand first choice for themselves, and frequently during the past ten years has white labor manifested hostility to the competition of negro labor. This economic irritation was one of the main causes of the Atlanta riot of 1906, and this feeling has more recently been shown by the strike against negro employés on the Georgia railroads.

Since the Reconstruction the proportion of negro women in industry has increased. Few blacks are engaged in manufacturing, being kept out by their own lack of efficiency and by the prejudice of the white workers. In trucking, the construction of railroads, and lumbering they furnish a large portion of

the unskilled labor, but rarely attain positions of responsibility. In mining industries and foundry work, the blacks long had almost a monopoly which is in recent years being lost. In the cotton and canefields of the Mississippi valley the negro is still preferred. The Italian laborer, however, is successfully entering this field. When white and black labor are in direct competition the former as a rule proves more efficient. The negro laborer generally receives in wages about 80 per cent. of the pay of a white of the same grade.

Since 1880 the proportion of whites engaged in agriculture, the prevailing occupation, has decreased, though in numbers the whites continue to gain. The decrease in proportion is caused mainly by the drawing away of whites into the factories, into lumbering, milling, railroading and into other skilled occupations from which negroes are excluded. In farming, as has been stated, they excel the blacks; the great cotton states are the new white ones: Texas and Oklahoma. The whites of southwest Louisiana and south Texas have succeeded so well with rice that the negro rice districts of South Carolina and Georgia have been driven out of the business. The new industries—manufacturing, mining, etc.,—have developed mainly in the white districts where minerals and water power created most favorable conditions.

The shifting of occupations since 1880, due principally to the movements of the whites, are shown by the following percentages: the proportion of the laboring population engaged in manufacturing and mechanic arts increased between 1880 and 1900, in the South Atlantic states from 10 per cent. of the total to 15 per cent., and in the South Central states from 7 per cent. to 9 per cent.; in trade and transportation the increase was from 5 per cent. to 10 per cent.,

and from 5 per cent. to 9 per cent. in the respective sections; the proportion of servants increased in the South Atlantic states from 17 per cent. to 20 per cent., and in the South Central states from 14 per cent. to 15 per cent.; in agriculture there was a decrease from 63 per cent. to 50 per cent., and from 71 per cent. to 63 per cent., respectively, in the two sections.

More negroes in proportion work than whites. Of negro women 41 per cent. work outside of the house; of the Southern white women only 11 per cent. work out. The negro population, which has long constituted about one-third of the total, is not increasing as fast as the white, as the following table shows:

Year.	*Whites.*	*Blacks.*
1860	7,000,000	4,000,000
1870	7,800,000	4,400,000
1880	10,500,000	5,900,000
1890	13,200,000	6,700,000
1900	16,700,000	7,900,000

The Southern negroes constitute nine-tenths of the race in America; three-tenths of these are in Georgia, Alabama, and Mississippi; 62 per cent. of the total number are breadwinners, more than half of them in agriculture—two million as against about three million whites in the same occupation. At the last census there were in eleven Southern states 552,287 white tenants and 463,794 colored tenants.

Immigration has only slightly affected the labor situation in the South, though the future promises much in this respect. All attempts made during the Reconstruction failed utterly to induce white labor to come to the South. Chinese coolies brought from California were tried in the construction of some of the railroads in Alabama and Tennessee, but were unsatisfactory. In 1880 there were in the South only 440,000 foreign born residents; twenty years later there were a hundred thousand more; and since

1900 there has been a more rapid immigration, especially from Italy, to the cotton and cane districts. The following states have regained all that they have lost by emigration: Arkansas, Florida, Louisiana, Texas, and West Virginia. From the Northern states there has been a strong movement of farmers rather than of laborers, but these do their own work, and in districts like Southern Alabama, Southwest Louisiana, Florida and southern Texas they have changed the character of agricultural industry. The Italians have driven negro labor from several small districts in the cotton regions. It is believed that with the filling up of the North more laborers will be directed toward the South and that the negro has yet to meet severe competition in his own Black Belt.

The following table will show the number of laborers in each occupation field since 1870:

OCCUPATIONS, 1870–1900.

Census Year.	South Atlantic States, Omitting Delaware.	South Central States, with Missouri.
Agricultural Occupations.		
1870	1,273,000	1,499,000
1880	1,604,120	2,476,415
1890	1,680,106	2,741,615
1900	2,012,998	3,764,293
Domestic and Personal Service.		
1870	349,000	293,000
1880	501,072	586,473
1890	565,246	666,889
1900	781,988	982,752
Trade and Transportation.		
1870	118,000	111,000
1880	171,765	242,532
1890	298,955	455,046
1900	410,513	773,737
Manufacturing and Mechanic Arts.		
1870	215,000	145,000
1880	283,985	309,415
1890	446,913	532,778
1900	604,294	705,354

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CONVICT AND APPRENTICED LABOR IN THE SOUTH.

NOT the least of the many problems confronting the Southern states immediately after the War of Secession, was the treatment of the ever-increasing number of criminals among the recently emancipated negroes. The discipline of the slavery system had had a deterrent effect upon the criminal instincts of the black man, and even when such traits appeared, except in the case of serious crimes, the punishment was in the hands of the master rather than of the state. To many of the freedmen liberty meant license, with the result that the jails were soon overcrowded, and the impoverished states could not build larger prisons. The convict lease system was a natural result; and it proved profitable both to the state and to the lessee, as the latter could almost always underbid free labor. The long period of financial embarrassment following the revels of the Reconstruction, and the demand for labor growing out of the new industrial development, combined to fasten the lease system upon the South for many years. By the end of the decade following 1867 every one of the former Confederate states had adopted the plan of leasing its

convicts; of the other Southern states, Kentucky retained the lease system, which it had adopted before the war, and Maryland, Missouri, and West Virginia maintained the contract system. In the states where the lease system was employed about nine-tenths of the convicts were negroes.

Under the lease system the convicts were worked in gangs, under the eye of armed guards, and in most of the states the entire control of the prisoners was in the hands of the lessees. Virginia in 1877 leased its convicts to a canal company; Tennessee at this time worked a part of its convicts within the penitentiary, a part on farms, and the rest were leased to railway companies and coal miners. The lease system here changed an annual expenditure (1867-71) of $114,000 into an annual income of $33,000. North Carolina employed a portion of its convicts within the penitentiary walls on public account, and the rest were scattered over the state in the hands of lessees. Much of the difficult tunneling of the Blue Ridge Mountains for the Western Carolina Railway* was accomplished with convict labor. South Carolina's system was like that of her northern neighbor. Georgia leased its prison population in 1868, and ten years later there were fourteen camps, which were so scattered that the state did not even furnish the chaplain and medical officer authorized by law. This was an example of the system at its worst. The Alabama convicts were employed in the early seventies in railway building, and were so badly treated that in 1873-74 all the convicts were taken from the control of lessees, and a farm was purchased and stocked for their employment. The plan failed, however, and by 1882 the convicts were in the hands of fourteen different lessees. Nevertheless, there were at-

* Now a part of the Southern Railway system.

tempts at reform; in 1883 subleasing was prohibited without the approval of the warden and governor; whites were separated from negroes, and felons from those convicted of lesser crimes. In Alabama the lease system still survives, but in a greatly modified form, with the state having full control of the prisoners. A portion of the convicts are also employed on public account. In Mississippi, in 1873, part of the prisoners were employed at the penitentiary under the direct control of the warden; but by 1880 practically all of the convicts were leased to the highest bidder, and were employed in railway construction or on plantations. In this state, and also in Louisiana and Arkansas, a system of subleasing was then resorted to. Texas until 1883 gave the entire control of the convicts to the lessees, who employed a portion of the prisoners within the walls, in a cotton factory, and at numerous trades, and placed the remainder in railway construction camps. In Florida in this period most of the prisoners were leased on turpentine farms. Here, in 1909, the lease system was still in force. In 1906 the lessees sublet the labor to twenty-eight different individuals or companies, and the men were employed in thirty-three camps, about 90 per cent. of them working in the turpentine fields and the remainder in the phosphate mines.

The disadvantages of the lease system were soon apparent. No idea of the reformation of the prisoner was entertained; he was regarded by the lessee mainly as a source of revenue. The discipline of the camps was bad, the surroundings unsanitary, the death rate appalling, the number of escapes enormous. In the first twelve years of the lease system in Georgia nearly one-third of the prisoners received either died or escaped; in South Carolina the proportion was about one-fourth. In Texas,

from 1875 to 1880, the total number of prisoners discharged was 1,651, while the deaths and escapes for the same period amounted to 1,608. The lease system, as it at first existed, not only violated all feelings of humanity, but through the frequent escapes of criminals which it made possible, it failed to give to citizens the degree of security they had a right to expect. Humane public officials and philanthropic citizens at last gained the ears of the legislators, who had been reluctant to change a source of revenue to a possible item of expenditure; and the period from 1883 to 1908 witnessed the gradual abolition of the lease system in all the Southern states except Alabama and Florida. In some of the states, for example North Carolina, the system was abolished gradually; in others, as was the case in Louisiana and Georgia, the change was effected immediately,—in the former state by constitutional amendment, and in the latter by statute.

Farming, manufacturing under the public account system, and the building of public roads by convicts have supplanted the old lease system. In North Carolina, under the "Mecklenburg law," good roads were constructed at a cost ranging from $800 to $1,800 per mile. In this state a large number of convicts are also employed in growing farm products, whose value has made the penitentiary more than self-sustaining. The lease system terminated in Georgia on April 1, 1909, and the counties were allowed to take their pro rata of convicts for work upon the public roads; any convicts not required for this service are placed on state farms or employed in the manufacture of supplies for state institutions. Louisiana employs most of its convicts in raising cotton and sugar-cane and utilizes the more able-bodied prisoners in the construction of levees. Arkansas, Missouri, Ken-

tucky, Virginia, West Virginia, and Maryland employ the contract system, while Tennessee combines with this the piece-price and the public account systems. Most of the states which employ their prisoners on farms use their penitentiaries only for the confinement of criminals who are too dangerous to be trusted outside of the walls or who are too feeble for labor on the farms or public roads.

The abandonment of the lease system has everywhere produced satisfactory results. In an account of limited scope, a single instance in proof of this statement must suffice. During the last eight years of the lease system in Louisiana the average annual death rate per 1,000 convicts was 94; for the first three years of state control it was 27; and for the year 1907 it was only 14.

The subject of apprenticed labor calls for no extended treatment here. The system as it existed befor 1865 has been described in the preceding volume,* and that description will also apply to the obsolescent apprentice system in the South at the present day. The laws of apprenticeship still remain on the statute-books and have undergone practically no change since the war. Since the Reconstruction and with the changes in trade instruction and labor organization, the apprenticeship system has become decadent. It is interesting, however, to note that in a few sporadic instances the binding out of negroes as apprentices has been a preliminary step to their reduction to a state of peonage.

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ECONOMIC AND LEGAL ASPECTS OF THE LABOR OF WOMEN AND CHILDREN IN THE SOUTH.

WOMEN and children who have been employed in Southern factories have worked almost exclusively in a few industries, among which may be named cotton textiles, tobacco and cigars, confectionery, paper boxes, and canning of vegetables and oysters. Women and children are employed also in mercantile establishments, and boys in mines and street trades. Many more women and children are employed in the cotton mills than in all other Southern industries combined, agriculture excepted. The pliability of their fingers adapts them to many cotton-mill operations.

Previous to 1880 the cotton textiles industry, though established, had not attained vast proportions in the South. In that year there were 561,360 active cotton spindles in the cotton-growing states; * in 1890, 1,570,288; in 1900, 4,367,688; in 1905, 7,631,331; in 1908, 10,200,903. In 1908 the number of such spindles in New England was 15,329,333, while in all states, excluding these two sections, it was only 1,975,186.† Though the spindleage of the South does

* Census Bulletin, 97, pp. 14, 15.

† For those in the entire South see article "Modern Manufacturing Development in the South" in this work; there were, in 1880, 665,000 spindles; in 1905, 8,200,000 spindles.

not yet equal that of New England, the growth of the industry has been much more rapid in the South. Already more cotton is manufactured in the South than in New England. The difference is that the fine grade of goods usually made in New England requires less of the staple and more labor than the coarser yarns and fabrics usually made in the South. In 1908, 2,187,096 bales were consumed in the cotton-growing states, 1,894,835 in New England, and 457,159 in all the other states.*

The sudden and enormous development of the cotton textiles industry in the South has caused an immense demand for labor. The supply has been drawn from the mountains, from the farms, and from the communities where the mills are located; practically none has come from immigration. A few experiments made with negroes as cotton-mill hands have shown that they are unsuited for such work. In 1905 the number of children under sixteen years of age employed in the cotton textile industries was 27,571 in the South and 9,385 in New England. The per cent. of such children of all operatives in the industry decreased in the South from 25.1 in 1880 to 22.9 in 1905, and in New England from 14.1 to 6.0. In 1905 the number of women, sixteen years old and over, employed in the industry was 37,918 in the South, and 70,113 in New England. The per cent. of such women of all operatives in the industry decreased in the South from 46.5 in 1880 to 31.6 in 1905, and in New England from 49.7 to 45.0.†

The general awakening of the public conscience in America concerning the evils of child labor may be said to date from the beginning of the Twentieth century. The report of the Industrial Commission

* Census Bulletin 97, p. 14.
† Census Bulletin 74, p. 39.

in 1900* shows that at that time the legal limit was as high as fourteen years in only nine states—Massachusetts, Connecticut, New York, Michigan, Indiana, Illinois, Missouri, Minnesota and Colorado; in two—Pennsylvania and Ohio—it was thirteen; in six—Maine, Rhode Island, Wisconsin, Maryland, West Virginia and Tennessee—it was twelve; in two—New Jersey and Louisiana—it was twelve for boys and fourteen for girls; in four—New Hampshire, Vermont, Nebraska and California—it was ten; while the other states had no limit.

Some Southern manufacturers have heartily upheld the movement to restrict child labor, while others have opposed it. Some have considered it a movement directed by manufacturing interests in New England to hamper a rival industry in the South, although the same influences in favor of restricting child labor have been exerted simultaneously in both sections. Some manufacturers claim that a child is better off in the factory than anywhere else except school, and point to the fact that in large areas in the South the school term does not exceed sixteen weeks a year. The opposition to state factory inspection is based largely on the traditional antipathy of Southern people to anything that savors of paternalism. On account of the comparative newness of the cotton textile industry in the South, the evils of child labor have not been fully realized by the general public, but nevertheless remarkable progress in the way of minimizing such evils has been made since 1900. Every Southern state now has a child-labor law.

The age limit now is fourteen in Virginia, Kentucky, Tennessee, Louisiana, Arkansas and Missouri; thirteen in North Carolina; twelve in Maryland, West Virginia, South Carolina, Georgia,

* Volume V, pp. 52, 53.

Florida, Alabama, Mississippi and Texas. West Virginia has a compulsory education law which virtually raises the working age limit to fourteen. All child-labor laws of the Southern states apply to work in factories; some, also to work in mines, laundries, stores, messenger service, etc. In Maryland and Arkansas there is no age limit for children working in the canning industry. In South Carolina, Georgia, Alabama, Texas and Arkansas there are legal exceptions which permit the employment of children under the specified age, if their labor is necessary to support themselves or their widowed mothers or aged or disabled fathers.

In some Southern states the mere statement by the parent that the child is of the legal working age is sufficient, in others the parent's affidavit is required. As registration of births is required only in some cities in the South, and not at all in the country districts, it is practically impossible in most cases to secure better evidence of age. In Virginia, North Carolina, Tennessee, Alabama, Florida and Mississippi there are no educational requirements for the employment of children.

Legislation by Southern states has not only prescribed the legal age of employment, but has restricted working hours for children, so that they do not exceed sixty a week, except that in North Carolina and Georgia they may be sixty-six, in Mississippi they are limited to fifty-eight, in Missouri to fifty-four and in Oklahoma to forty-eight. The legal maximum working hours for women are sixty in South Carolina, Louisiana and Tennessee, and sixty-six in North Carolina and Georgia, while in other Southern states they are not limited. The employment of children in factories at night is prohibited in Virginia, Kentucky, North Carolina, Georgia, Alabama, Mississippi, Texas, Arkansas,

Oklahoma and Missouri. Night work for females under eighteen years of age is prohibited in some of these states, for females under twenty-one in some, but not in any Southern states for females over twenty-one. The laws of Maryland, Virginia, West Virginia, South Carolina, Alabama, Mississippi, Louisiana, Kentucky, Oklahoma and Missouri provide for factory inspection.

At a textile conference, held at Nashville in 1907, representatives of child-labor organizations and labor unions and manufacturers presented unanimously adopted resolutions which recommended the enactment of laws fixing the age limit at fourteen, and the weekly hours of labor of children at sixty, and as soon as practicable at fifty-eight, prohibiting night work for children, prohibiting early marriages, providing for the registration of births and for the compulsory education of children between the ages of seven and fifteen, providing for the punishment as vagrants of fathers able to work who do not work, but live on their children's earnings, providing for factory inspection and the appointment of women as inspectors for employments in which women and children are engaged, and laws to secure proper sanitation and ventilation of factories and the adoption of safeguards for dangerous machinery. A similar conference, held in New Orleans in 1908, adopted like resolutions, but recommended that the weekly hours of labor of children be made fifty-four instead of sixty. The manufacturers present did not agree to this reduction.

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THE MOUNTAIN WHITES AS AN INDUSTRIAL LABOR FACTOR IN THE SOUTH.

THE settlement of mountainous and middle North Carolina was practically by the same elements,—Scotch-Irish, Germans, Moravians, and Quakers,—as came to Pennsylvania. Many emigrants landing at Philadelphia and New Castle, Delaware, settled first in Pennsylvania and moved southward through the Valley and Piedmont of Virginia to the Carolinas. Others landed at Charleston and moved north-westward. In South Carolina even the names of several of the northern counties are identical with those of Pennsylvania, as Lancaster, Chester, and York counties.

These settlers brought with them a large degree of knowledge and skill in manufacturing. All along

the Piedmont and even in the mountains from Pennsylvania to Georgia, they not only followed agriculture, but developed varied household manufactures in the period between 1750 and 1800. Here also, the materials and water power for manufacturing were more abundant, and the health conditions were better. In 1800 many charcoal blast furnaces making pig iron and many catlin forges and rolling mills making wrought iron bars, and other products of iron, indicate that a manufacturing development throughout the Piedmont region of the South might have continued parallel with that which has taken place in Pennsylvania, except for the circumstances of the combined influence of the invention of the cotton gin, the institution of slavery, and the checking of this immigration. As late as 1810 the manufactured products of Virginia, the Carolinas and Georgia exceeded in variety and value those of the entire New England states. By Whitney's invention, and its improvement by Holmes, cotton planting became so profitable, that for a period of forty years the price remained above twenty-five cents a pound. Factories were abandoned, the owners going into the production of cotton with slave labor. Some of the factory workers emigrated to the then northwest, Indiana, Ohio and Illinois. Others, being left without industrial work, went into a precarious agriculture, by preference, outside of the cotton belt, to escape the unpleasant competition of slave labor. The factory workers and small farmers were largely already located on the mountain sides, and the development of cotton production with slave labor tended further to separate this democracy from the white race aristocracy of the low country. As cotton and slavery advanced, the population of free white work people were driven farther and far-

ther into the mountain country, and thus many of the white industrial workers of 1800 became the poor mountain farmers of 1850. This poverty and segregation came simply for lack of opportunity, as the owners of factories who operated with free white labor in 1800 had become in 1850 the cotton planters operating with black slave labor.

These mountain people have ever been one of the most sturdy elements in the United States. In the War of Secession they were of the very best soldiers in either army, and when the abolition of slavery removed one great difficulty of industries and the people who had formerly deserted manufactures for agriculture went back to the pursuits of their fathers, these mountaineers formed the labor supply. As fast as factories were started, forces of labor were organized from the foot-hill and mountain country to operate them, and it was found that the descendants of the industrial workers of 1800 could, with a little training, do as good work as their forebears did. They could make furniture, spin yarn, weave cloth, and do any of the ordinary things connected with manufacturing pursuits. They were not naturally farmers and they returned to manufacturing not only to relieve their wants and improve their condition, but as a sort of joyful occupation to which they were particularly suited by heritage. There is no parallel situation in which a manufacturing interest as great as that of the present South could possibly have been developed in so short a time. As managements developed, the labor was ready at hand and quickly became skillful. There were instances where the head of a family had drifted perforce into the illicit distilling of corn whisky to make a living, and there are those who think that the moonshiner's pursuit was one of choice and taste, but

these people cheerfully left the mountain farm and distillery to take places in cotton mills or other factories, and in many cases they are amongst the best and most orderly workers.

There are some factory pursuits in the South which depend to an extent on negro labor, as for example, the cotton-seed oil business, saw mills, and like heavy work; but in the great bulk of factory revivals the main dependence has been the native free white worker. Cotton manufacturing has been absolutely dependent upon these. The same may be said of the furniture manufacture, which has assumed large proportions. The trousers factories, the machine shops, and all factory employments requiring training or inherited skill, have been supplied by free white labor from what some erroneously call "shiftless mountaineers." The bulk of this element never lived high up in the mountains, but generally more upon the foot-hills. They descended largely from the same white stock as inhabitants of Pennsylvania, and they are perhaps more American than any other similarly located population in the United States. They are, and always have been, entirely reliable, and are generally regular at their work, industrious and self-improving. Some become bosses and superintendents, and some mill owners. There is no difference in blood or heritage between them and the mill managements and mill owners, and many of them are already part of the management and ownership. All of them are advancing in moral and intellectual condition with the same startling rapidity that material development in the South is advancing.

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THE INDIANS AS A LABOR FACTOR IN OKLAHOMA AND INDIAN TERRITORY SINCE 1865.

Soon after 1865, the last of the Five Civilized Nations, so-called, had attained such a state of civilization as enabled them to unite under a true government composed of the legislative, executive, and judiciary branches—a government patterned after that of the state of Mississippi. At the time of their removal to the Indian Territory, they were no longer roving bands of Indians, but were already well established in husbandry, and from this time on, none followed the hunt for a subsistence. Hunting had become a pastime, and was no longer a necessity. From this time, therefore, the Indians were direct contributors to the economic development of the South. In 1865, although they still held their lands in common, personal and property rights in general were regulated by statute. The interest on trust funds, obtained by the sale of lands, was largely used to establish public schools, seminaries, and orphan asylums.

The Five Nations had under cultivation in 1865 more land than was sufficient for their needs. From the produce of their fields, they have not only supported themselves, but have exported to the states wheat, oats, potatoes, and corn in paying quantities. In the year 1872, for example, they had under cultivation 215,676 acres. Their total produce was 148,648 bushels of wheat, 6,420,595 bushels of corn, 104,282 bushels of oats and barley, 296,379 bushels of potatoes, 45,345 tons of hay cut, 1,547 bushels of rice. They owned 53,549 horses, 1,500 mules, 65,949 head of cattle, 355,527 swine, 16,115 sheep, besides selling

$10,000 worth of furs in that year. The total valuation of stock and produce for the Five Nations was then $4,122,400, and their individual property was valued at $4,995,055. Their united population was 47,398.

Sixteen years later, in 1888, we find 357,398 acres under cultivation, an increase of over one-third. There were produced 157,424 bushels of wheat, 3,496,042 bushels of corn, 298,465 bushels of oats and barley, 515,980 of vegetables, 245,575 tons of hay cut, and they now owned 75,513 horses, 5,248 mules, 297,040 cattle, 400,282 swine, and 34,043 sheep, besides pasturing for outsiders nearly 150,000 head of cattle. The figures indicate increased attention to stock-raising.

Since that period they have received considerable annual revenue from the leasing of their fine pasture lands to white cattle-men, the Cherokee chief, Bushyhead, having made in one year a contract with the Cherokee Strip Live Stock Association to lease six million acres for $100,000 per annum in semi-annual payments. They have also sold portions of their territory to the government, upon which there have been settled other tribes and portions of tribes from various parts of the country. From the proceeds of these sales, which have been conducted more intelligently than those of less civilized Indian nations, improvements have been made from time to time in their homes and schools.

In the eastern portion of their territory, which is rugged and mountainous, valuable coal beds were discovered and worked by them on a small scale, years before the enlistment of outside capital made larger operations possible. Oil, too, has been discovered, both in surface and deeper veins, and at first was utilized only for domestic purposes, but since 1890 the oil wells have been enormously developed,

chiefly by outside capital, contributing greatly to Indian wealth. In 1907 over three thousand leases of oil and mineral lands were presented to the United States government for approval.

The total output of coal in Indian Territory for the year ending June 30, 1904, was over three million tons. Fifty-six companies were operating, and a majority of the employees of these companies were Indians of the Five Civilized Tribes.

The Creek nation received in royalties on coal, oil, and gas, grazing tax, occupation and merchandise tax, etc., in the year 1905-06, $152,000 in round numbers. In the same year, the Cherokees received from similar sources $236,000, having over one thousand separate oil and gas leases; and the Choctaws and Chickasaws were paid $850,000. The total receipts for the Five Nations in that year from all sources, including interest on trust funds, reached a sum of $3,237,936.

The entire estimated Indian population of the Territory in 1895 was seventy thousand. Ten years later, including citizen freedmen and intermarried whites, who have equal rights in allotment, it was as follows: Choctaws, 25,116; Chickasaws, 10,767; Creeks, 15,923; Cherokees, 36,792; Seminoles, 3,049; making a grand total of 91,637.

The area of the Indian Territory is nineteen million acres, and its natural resources extensive. Asphalt beds only need capital for development and improved machinery for refining the product. Crop failure is unknown. There is in some parts an abundance of pine timber, and also very fine forests of hard wood. The lumber industry has been developed by the more enterprising Indians to a creditable degree, and they have shipped their walnut lumber not only to the states, but abroad.

Since the first railroad was built through the In-

dian country, for the most part by Indian labor, the transportation of their products has been made possible and convenient. Their towns, such as Muscogee and Tahlequah, are modern, prosperous and law-abiding communities.

Of late years there has been little to interfere with consistent and continuous Indian progress. Not only have Indians maintained themselves as an independent nation for many years, and contributed, as has been seen, to the general development of the South, but they have intermingled freely with the dominant race, both socially and politically, intermarrying largely among them. Their standard of education is high, and they have representatives in all of the learned professions, both in their own country and outside.

In 1898 the Five Nations began to individualize their tribal holdings, and are now bona fide citizens of the United States, with a representative and also a senator of their own blood in the councils of the nation.

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AGRICULTURE.

THE CONDITIONS OF TOBACCO CULTURE IN THE SOUTH.

AS the War of Secession was waged in the heart of the Southern tobacco states, it is not surprising that the cultivation of tobacco received a serious setback. In 1870 every single Southern state reported a smaller crop than was grown in 1860. The total crop of the nine most important Southern states fell from 403,975,915 pounds in 1860 to 227,139,646 pounds in 1870. In the same decade all the Northern states reported an increase in production of tobacco. Naturally enough, Virginia, Maryland, North Carolina, and Missouri suffered most. One of the striking changes effected by the war was the permanent shifting of production westward into the newer fields of Kentucky, Tennessee, North Carolina, and southern Ohio, where land was more fertile and where the effects of the war had not been so disastrous. Virginia and Maryland never completely recovered, for their crops of 1860 have not been equaled since. Kentucky assumed the leadership for tobacco production, and still holds it.

Since 1870, however, increased consumption at home and abroad greatly stimulated production. The annual per capita consumption in the United States has increased from 1.6 pounds (1861-65) to 5.5 pounds (1901-05); in Germany from 2.8 pounds to 3.5 pounds; in France from 1.7 pounds to 2.1 pounds;

in England from 1.2 to 1.9 pounds. In the following table is presented the growth of the industry, especially in the six leading Southern states, showing the effect of the war and the development since the war:

PRODUCTION OF LEAF TOBACCO, 1860–1908.

	1860 lbs.	1870 lbs.	1880 lbs.	1890 lbs.	1900 lbs.	1908 lbs.
United States..	434,209,461	262,735,341	472,661,157	488,256,646	868,163,275	718,061,380
Kentucky.....	108,126,840	105,305,869	171,120,784	221,880,303	314,288,050	195,600,000
North Carolina.	32,853,250	11,150,087	26,986,213	36,375,258	127,503,400	134,000,000
Virginia.....	123,968,312	37,086,364	79,988,868	48,522,655	122,884,900	114,100,000
Tennessee.....	43,448,097	21,465,452	29,365,052	36,368,395	49,157,550	52,000,000
Maryland.....	38,410,965	15,785,339	26,082,147	12,356,838	24,589,480	18,200,000
South Carolina.	104,412	34,805	45,678	222,898	19,895,970	25,085,000
Total, six States	346,911,876	190,827,916	333,588,742	355,726,347	658,319,350	538,985,000

A notable decline of the industry has occurred in Missouri. In 1860 she produced 25,086,196 pounds, in 1870 only 12,320,483 pounds, and in 1905 only 1,295,000 pounds. The industry is reviving again, its product in 1908 being 2,187,500 pounds. The principal tobacco counties before the war were Chariton, Howard, Franklin, Pike, and Callaway. To-day Chariton is the only county that produces above one-half million pounds.

In 1908 Florida produced 5,568,750 pounds, but this is a cigar wrapper leaf and quite distinct from the other leaf grown in the South. Production increased steadily in the South and reached its banner year in 1900. Since that year its cultivation has fallen off, markedly so in 1908, in which year the planters curtailed production with a view of raising the price. The South grows, on an average, five-sixths of the entire crop of the country. Over one-half of the Southern crop is exported. England purchases 30 per cent.; Germany 16 per cent.; Italy 10 per cent.; France 10 per cent.; the Netherlands 6 per cent.; Spain 5 per cent. England alone takes about one-third of all our exports. The Southern exports, averaging annually 330,000,000 pounds, exceed the

combined exports of all the other countries. At 8 cents per pound our exports amount annually to about $25,000,000. The total Southern annual crop is valued at from $50,000,000 to $60,000,000.

The freeing of the slaves effected permanent changes in the industry. As the planter lost his hold on forced labor, the plantation system collapsed. There resulted a breaking-up of large estates into small farms. Prior to the war, in the principal tobacco counties of Virginia (Halifax, Pittsylvania, Mecklenburg, Charlotte, Albemarle, etc.), which were also among the largest slave-holding counties, farms ranged from one hundred to five hundred acres, whereas to-day they average from twenty to fifty acres. This disintegration of large holdings has been noticeable in other tobacco sections of the South.

The plantation system gave way to new systems of land tenure. Only 51 per cent. of Southern tobacco farms are cultivated by the owners of the land; 33 per cent. are cultivated by share-tenants, and 16 per cent. by cash tenants, part owners and managers. The crop-sharing system is very common in all tobacco sections of the South. The share allotted to the tenant depends on the amount of capital he furnishes. Where the owner supplies the ordinary farm implements, work animals, and barn, the tenant generally receives one-half of the crop. It is generally conceded that the yield and quality of leaf is best when cultivated by the owner. It is an interesting fact that negro labor produces most under the managerial system. Under no system does the yield per acre of colored planters equal that of white planters.

Along with the increase in the number of small farms, is a marked tendency towards intensive cultivation and diversification of crops. Farm help is too costly and land too valuable to continue cultiva-

tion under the old method. The problem confronting the planter since the war has been not to get quick returns from a fertile soil, soon exhausted, but fair returns from a less fertile field. This could be done only by abandoning the extensive method of cultivation. The effect of intensive cultivation reflects itself in the increased yield per acre, as shown in the table below.*

Intensive cultivation demands that the fertility of the soil be preserved, and this has been made possible through the use of fertilizers and improved rotation of crops. The relative high value of the tobacco crop per acre makes the use of fertilizers possible.

There has also been a diversification of crops; only a small portion of each farm is devoted to tobacco. In 1900 only 34 per cent. of the 300,000 farms reporting tobacco derived more than 40 per cent. of their income from tobacco alone. Less than 10 per cent. of the acreage of the Southern tobacco farm is devoted to tobacco. Under the crop-sharing system provision is usually made in the lease for the growing of food supplies by the tenant. However, in many localities tobacco is still the only money crop, though not so much so as before the war.

We cannot enter deeply into the technique of cultivation. The crop is one that requires plenty of labor constantly employed. Transplanting, ploughing, harrowing, topping, suckering, priming, keep the planter busy for fully three months during the growing season. Then follows the curing processes, requiring anywhere from several days to several weeks, or even months, before the product is marketed. Labor is a much more important factor here

*YIELD PER ACRE.

	1880	1905		1880	1905
	lbs.	lbs.		lbs.	lbs.
Kentucky.....	757	830	Virginia.....	568	675
North Carolina.....	472	608	Tennessee.....	707	768

than in other crops and the Southern farmer is always confronted with the problem of a scarcity of farm help.

Before passing to a discussion of the marketing of tobacco, it is necessary to give a condensed statement of the important types of tobacco grown in the South, where grown, the importance and the use made of each type.

SOUTHERN TOBACCO.

Types.	Where Grown.	Quantity.	Use.
Dark Tobacco.....	Kentucky, Virginia, Tennessee and Indiana.	One-third of total United States supply.	Export (plug) snuff, plug and twist.
Bright flue-cured..	North Carolina, Southern Virginia, South Carolina.	One-sixth of total United States supply.	Cigarettes, granulated smoking, flat plug. Some exported.
Burley.....	Kentucky, Southern Ohio, West Virginia, Indiana.	One-fifth of total United States supply.	Navy plug, cut plug.
Maryland and Eastern Ohio Tobacco.....	Maryland and Eastern Ohio.	Three per cent.	Exported.

The old method of auctioning the leaf in public warehouses is still in vogue in the South. Each district has one or more of these warehouses, centrally located, in village or city. The leaf is sold either loose, as in the " Bright flue-cured " district, or on the " breaks " in hogsheads, as in the Burley district. Samples are exhibited at auction. When purchased loose the tobacco must be rehandled. The American Tobacco Company has twelve rehandling plants in the Southern Bright district, besides its many storage warehouses. The most recent innovation in the marketing of tobacco is the establishment of country purchasing depots in the Burley districts, by the American Tobacco Company, where they buy at private sale and not at auction. A large quantity of Burley is purchased in this way.

The " Dark Shipping " tobacco is marketed principally at Clarksville and Nashville, Tennessee;

Paducah, Mayfield, Bowling Green, and Hopkinsville, Kentucky; and Lynchburg, Virginia. The Southern Bright is sold at Henderson, Wilson, Winston, and Rocky Mount, North Carolina; Darlington and Timmonsville, South Carolina; and Danville and Richmond, Virginia. Burley is sold at Cincinnati and Louisville. Maryland export tobacco is sold at Baltimore.

There has been a great deal of discontentment among the Southern tobacco planters because of the prevailing low prices since 1895. The charge is made that the Trust, by its dominant position in the industry, has depressed prices. It is also charged that the foreign buyers, especially the Regie agents, have been in collusion with the Trust to lower prices. Let us analyse the situation.

Of the total output of the United States, in 1906, the Tobacco Combination manufactured 96 per cent. of the snuff, 82 per cent. of cigarettes, 82 per cent. of plug, 81 per cent. of fine cut, and 71 per cent. of smoking tobacco, most of which are manufactured from Southern leaf. The Trust purchased about 400,000,000 pounds of leaf in 1906, or fully 80 per cent. of the total Southern tobacco used for domestic consumption. As the tobacco exported equals over 50 per cent. of the entire crop, the Tobacco Combination and a few foreign buyers purchase over 90 per cent. of the entire Southern crop. Hence it is seen that almost the entire crop is purchased by a few buyers, and herein resides a power to control prices.

The planters, however, have for several years been fighting the Combine through organizations of their own, known as Equity Societies. These organizations have been especially active in the "Dark" and "Burley" districts of Kentucky and Tennessee. They have in some instances been able to pool their interests, and by holding back their crops have suc-

ceeded in raising prices. Production has also been curtailed to the same purpose.

No accurate or satisfactory statistics of prices are available. Those usually published have failed to make due allowance for types, classes, and grades. From 1896 to 1906 prices for all grades of all types of Southern tobacco were unquestionably low. In 1907, 1908, and 1909 prices have risen somewhat. If the Trust has not depressed prices (and in some instances it did do so), it at least prevented prices from rising along with other agricultural products. This tendency of keeping prices down, at a time when general prices were rising and tobacco planters working on a low margin of profit, has had the same pernicious effect as an actual lowering of price under normal conditions.

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THE CONDITIONS OF RICE CULTURE IN THE SOUTH SINCE 1865.

AT the close of the War of Secession in 1865 the agricultural interests of the South, as well as all other industries, were entirely prostrated and nearly destroyed. The Southern people who came out of

THRASHING RICE WITH THE AID OF A TRACTION ENGINE.

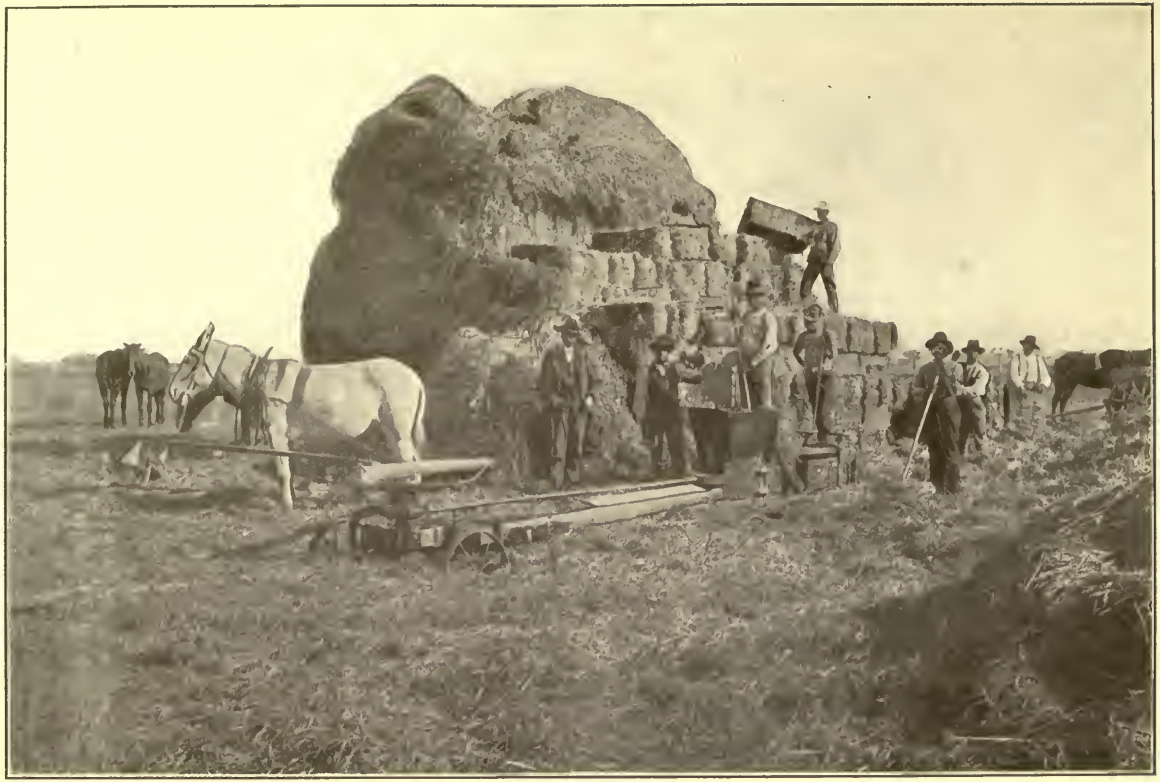
that fearful struggle alive were stunned, and began a fight for existence against almost insuperable difficulties. The beasts of burden and cattle had nearly all been taken by the contending armies and the country had been swept of nearly everything in the shape of farm implements and machinery. Many of the homes on the plantations had been reduced to ashes and the fields in every direction were overgrown with weeds, shrubbery and trees. A reclearing of the lands over vast areas became necessary before crops could be planted. The rice planters who occupied the coast regions of South Carolina, Georgia, Alabama, Florida, and Louisiana had, many of them, been killed in battle or had emigrated to the interior country, leaving the rice plantations abandoned to wild plants and destruction. The labor, as a result of the freedom of the negroes, became badly demoralized and the production of rice had been tremendously cut off. The canals, dams, and flood-gates had been destroyed and choked with shrubbery, and the outlook to the returning rice planter was gloomy indeed. This fact is clearly exhibited in comparing the total yield of rice in 1860 of 187,167,032 pounds and that of 1870 of 73,635,021 pounds, a loss of 113,532,011 pounds.

From 1865 to 1876 parts of the South were turned over to the misrule of the carpet-baggers and the negroes by the Federal authorities, and ruin ran riot. The state governments were fearfully mismanaged, the treasuries robbed, and enormous debts were saddled on the people which twenty years of heroic sacrifice and suffering reduced only sufficiently to allow for satisfactory rehabilitation and a beginning towards prosperity and growth. The rice interests in all these so-called " reconstruction " years suffered like every other enterprise. It can be safely asserted, therefore, that not until about

1890 did the general business enterprises of the South begin an upward tendency towards prosperity, and the awful results of war become facts of history. After 1890 the future looked bright and hopeful. The agricultural crops were multiplying each year and were bringing to the farmers millions of dollars in return for their labor.

In renewing the cultivation of rice it soon became evident that even after the canals, dams, and floodgates were restored and the fields cleared of grass and shrubbery, the old way of sowing, cultivating, and harvesting the crop for the market must be supplanted by more modern methods. The end of slavery ushered in a totally different condition of labor and this fact required a revolution in the management and direction of the laborer. The more intelligent negroes began to crowd the cities, leaving on the rice plantations the inferior and unprofitable class of negroes, which rendered the situation of the rice planter a difficult one indeed. The resourcefulness of these planters, however, gradually brought order out of chaos, and they looked for rich harvests in the future. In the meantime much attention was devoted in Louisiana to the introduction of modern machinery, to the careful preparation of the land, to the cultivation of rice and to its harvesting, so that large crops were gathered with less labor than at any time prior to 1865.

Early in the eighties some farmers from the northwest wheat fields settled portions of the lands along the coasts of Louisiana and Texas, and finding that rice was a profitable crop they entered upon its cultivation on an extensive scale. They were familiar with the gang plow, the disc harrow, machinery for sowing the seed, and the harvesting and binding machinery then in constant use throughout the prairie wheat regions of the Northwest. The old diffi-



BALING RICE STRAW FOR MARKET.

culties of rice cultivation and harvesting became greatly reduced under these modern methods, and Louisiana rapidly rose from the third position, which she held in 1880 when the crop was 23,188,311 pounds, to the first position among the Southern states in 1895 when the rice crop gathered by her farmers rose to 127,600,000 pounds.

To show how greatly the crop increased in amount in Louisiana under the improved methods of farming the following figures are submitted: 1868, 13,783,000 pounds; 1870, 15,854,012 pounds; 1880, 23,188,311; 1895, 127,600,000 pounds; 1905, 253,911,155 pounds; 1908, 519,750,000 pounds.

The total rice crop of the United States in North America for the year 1904 was 869,426,800 pounds which brought to the planters $15,649,682. In 1908 the crop was 982,364,000 pounds valued at $17,-771,281.

In South Carolina, which held the first position at all times prior to 1865, the old methods of rice farming have largely prevailed. The physical conditions of the soil seriously retarded the introduction of the larger and more modern machines for preparing the land, sowing, cultivating, and harvesting the crop. Carolina's crop, therefore, has fallen off from 52,-077,515 pounds in 1880 to 27,901,440 in 1895—a reduction of nearly one-half. Insect attacks and ravages of disease have greatly aided in this disaster attending the South Carolina rice interests.

About ten years ago the United States Department of Agriculture, at an expense of $18,000, introduced in Texas and Louisiana a Japanese rice of the Kiushu variety and a tremendous increase resulted in the crop. This great yield reduced the price of the rice and almost drove the Carolina planters out of the business, encumbered as they were with their more expensive methods of rice

farming. The price of the lands in Texas and Louisiana, however, increased in value from $1 to $2.50 per acre in 1899, to $35 and $50 per acre in 1905.

During the year of 1900 the people of the United States imported 117,199,710 pounds of cleaned rice, and in 1904, 106,483,515 pounds.

The Consular reports show that in 1908, 87,619,202 pounds of cleaned and uncleaned rice valued at $2,306,637 were imported by the United States; and besides this that 125,164,190 pounds of rice flour valued at $2,250,895 were brought into this country to use in the manufacture of beer. This importation of rice should be reduced if not entirely eliminated by increasing the acreage of cultivation along the Atlantic and Gulf coasts.

The rapid increase in the yield of rice in Louisiana during the past ten years must have made a serious inroad on the sugar acreage in the state. There are no accurate statistics concerning this question available, but a study of the Census reports and the published data issued by rice experts, make the following deductions appear justifiable.

On both banks of the Mississippi River, prior to 1875, sugar cane was extensively cultivated from Pointe Coupée to within a few miles of the mouth of the river. Large sugar estates extended all the way on both sides of the Mississippi. In 1870 rice was cultivated in the parishes of La Fouche, Plaquemine, St. Charles, St. James and St. John the Baptist. About 1880 the parishes of Iberville, La Fouche, Orleans, Plaquemine, St. Bernard and St. James became the chief rice sections of the state. Bouchereau states that in 1873 there were 150,000 acres of land in sugar cane, but in 1877 this acreage had been reduced to 104,944 acres. In 1877, Plaquemine Parish, formerly one of the richest sugar-cane sections, became a great rice-producing parish of Louisiana.

TYPE OF WELLS BORED ON A LOUISIANA PRAIRIE FOR IRRIGATING RICE FIELDS.

In later years, after the introduction of improved machinery and better methods of cultivation, the enormous yields of rice evidently point to a much larger increase in acreage, and this means either an encroachment on the sugar territory or the recovery of portions of the areas of unimproved land. Probably both inferences are correct. It is only necessary to call attention to the great increase of rice from 1890 to 1908 to give weight to the supposition that portions of the sugar-cane lands have been absorbed by the rice farmers. The improved methods of preparing the lands and harvesting the crops are not in themselves sufficient explanations of the great increase in the yields of rice from year to year. Additional land, and large areas at that, must have been utilized by the farmers to satisfy the conditions under consideration.

In the other states of the South sugar cane is not so important a crop as it is in Louisiana and the rice industry has not grown relatively to such large proportions. The two crops are not, therefore, competing products. Moreover, for the reasons already referred to on preceding pages, the rice crops in Georgia and South Carolina have been considerably reduced within recent years and much of the land formerly occupied by rice has been planted in other crops.

There are extensive stretches of swamp coast land in South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas which if reclaimed will make excellent rice farms and the great importation of this valuable product would cease, in fact the Southern people would begin to supply the demands of foreign lands with a much superior rice to that now being used in those countries.

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SUGAR PRODUCTS IN THE SOUTH.

AN ante-bellum planter would be strangely out of place in a present up-to-date Central Factory. He would also be ill at ease in the fields he once cultivated, since agriculture has kept pace with manufacture. Improved disc and turn plows, disc and revolving harrows, have expelled the old wooden mouldboard plow and home-made harrow. Improved labor-saving cultivators have displaced expensive hoe gangs; stubble diggers and shavers supplant hoe labor in the stubble crop; fertilizer distributors deposit fertilizers on both sides of the cane; improved listers or double mouldboard plows are used to bed lands, and heavy rollers compress the dirt on planted canes; cane loaders of great efficiency have relieved the laborers of the tedium of placing cane in wagons. The cane harvester, the dream of a century, is now being evolved from the brain of genius, and is everywhere awaited as the most needed contribution of this age to the great sugar-cane industry of the world. Drainage is now appreciated as a prerequi-

site for large production and irrigation is universally discussed and practiced by a few as an essential aid to uniformly good crops.

The rich alluvial lands of the Mississippi River and outlying bayous heretofore regarded as inexhaustibly fertile, are receiving annually large doses of tankage, cotton seed meal, etc., with full confidence based upon experience that they will aid in the growth and development of larger crops of cane. Science has shown that properly selected and compounded fertilizers, judiciously applied, will give increased and profitable yields upon our richest soils. This marvellous development in the field and factory, manifested by the large crops grown during the present century, has been evolved in spite of floods which have at times wrought great destruction; of pestilence which has several times smitten the sugar districts; and of freezes at long intervals which had severely injured the seed cane. Perhaps the most powerful factor always at work preventing the fullest development of the sugar industry of the South, is the want of permanency in our national legislation—a defect inherent in our form of government, which allows the people an opportunity every four years of overturning "the powers that be." The War between the States destroyed the sugar industry; slaves were freed and thoroughly demoralized as laborers; sugar houses were burnt or demolished; lands were overgrown with weeds; ditches filled up; many planters were killed or died in the war; others were bankrupt at its close; banks were wiped out and credit destroyed. It was fifteen to twenty years after the war before the sugar industry began to assume vital activity, and only in 1893 did the crop of Louisiana reach that of 1861. The table below shows the development of this industry after the war, in tons of 2,240 pounds:

Years.	Tons.	Years.	Tons.	Years.	Tons.
1865.....	9,289	1880.....	121,886	1895.....	237,720
1866.....	21,074	1881.....	71,304	1896.....	282,009
1867.....	19,289	1882.....	136,167	1897.....	310,447
1868.....	42,617	1883.....	128,318	1898.....	245,511
1869.....	44,382	1884.....	94,372	1899.....	147,164
1870.....	75,369	1885.....	127,958	1900.....	270,338
1871.....	65,635	1886.....	80,858	1901.....	321,676
1872.....	55,891	1887.....	157,970	1902.....	329,226
1873.....	46,078	1888.....	144,878	1903.....	228,476
1874.....	60,100	1889.....	128,343	1904.....	355,530
1875.....	72,758	1890.....	215,843	1905.....	336,751
1876.....	85,102	1891.....	168,937	1906.....	230,000
1877.....	65,835	1892.....	201,816	1907.....	340,000
1878.....	106,900	1893.....	265,836	1908.....	355,000
1879.....	88,836	1894.....	317,306	1909(est.).	325,000

The crop of 1861 was 235,856 tons. Notwithstanding these obstructing and destructive agencies, the sugar industry to-day is developed to such a degree of excellence that Louisiana is esteemed as the leader of the sugar-cane world, and is furnishing valuable intelligence and experience to every tropical sugar country.

This progress, wonderful as it may appear, has been achieved under heavy difficulties, large expenditures of money and persistent activity, at times moving with almost imperceptible steps, at others with leaps and bounds. It may be said that every dollar gained by the sugar planters since the war has been rapidly absorbed in the improvement of their estates, and the rebuilding and enlargement of their sugar factories, until to-day they together represent an invested capital exceeding $100,000,000.

The war found the planters of the South using the striped and purple varieties of cane for seed. Since the war, the importations of many varieties have been made by Mr. LaPice, Mr. DuChamp, Mr. Palfrey, Mr. LeDuc and the Sugar Experiment Station.

None of these varieties proved worthy of extensive trial, until "seedlings" were introduced. Until re-

cently it was believed that sugar cane, although passing through a perfect inflorescence, never gave fertile seed. Now it is known that many of these seed are fertile, and they are utilized for producing new varieties. Every tropical country is at work producing seedlings, selecting from them those promising the largest tonnage with the highest sugar content. The Sugar Experiment Station has imported a large number of these seedlings from various countries and tried them upon the station grounds. Out of these importations two seedlings from Demerara, known as D.74 and D.95, have proven of superior merit and have been widely distributed and are now growing on nearly every plantation in the state. They are erect, straight, tapering canes, yielding large tonnage with a rich juice, and will in a few years entirely supplant the home canes.

In the past, occasional crevasses and overflows have destroyed thousands of acres of cane. The cane is planted with stalks and from two to six tons are used to plant an acre, and where a crop is destroyed, it will require several years to grow seed enough to reëstablish the estate in its regular rotation. Per contra, the cotton planter frequently follows the receding waters, sowing cotton seed, thus securing at once a crop. Hence crevasses and overflows, serious even to cotton growers, are almost fatal to sugar planters. Formerly our levees were temporary and broken every high water. To our older planters the great floods of 1874, 1882 and 1884 remain as nightmare memories. In 1881 Congress created the Mississippi River Commission, and made a large appropriation for improving the navigation of the river, and the construction and maintenance of levees. This action was supplemented in Louisiana by the creation of Levee Districts in various portions of the state, governed by Levee Boards,

with power to issue bonds, collect specific taxes, and erect and maintain the levees. There are a score of districts in this state which, in conjunction with the Mississippi River Commission, have spent millions of dollars on our levees and have rebuilt, strengthened and raised them three feet above the highest waters ever known. Our entire levee system has been thoroughly reorganized and everywhere the levees are watched with careful and persistent scrutiny, and for years there has not been a disastrous crevasse. Caving banks, crayfish holes, etc., may at rare intervals produce a crevasse and occasion an overflow of restricted area, but a general overflow from high water is now deemed impossible. Such confidence is felt in the stability of our levees, that the riparian owners of land on the Mississippi River are but little disturbed in flood seasons. This great obstacle to the sugar industry is reduced to a minimum.

After the war, up to 1869, the tariff on sugar remained at 3 cents per pound on brown sugar. In this year it was reduced to 2 cents. This reduction came at a moment when Louisiana was putting on its first habiliments of restoration and was quite severe, sending many merchants and planters into hopeless bankruptcy. In 1873 the financial needs of the government raised the tax to 2½ cents per pound, where it remained until 1890. This increase gave a healthy impetus to the sugar interests, which has continued ever since. In 1890 all tariff on unrefined sugar was removed and a bounty of 1¾ and 2 cents per pound was paid to every producer of domestic sugar. The bounty was abolished in 1894 and an *ad valorem* of 40 per cent. with differentials of 1/8 and 1/10 substituted in its place. This change of law just at a time when the world's markets were overstocked with sugar, reducing prices to 1¼ to 1½ cents per pound in tropical countries, and when a financial

panic prevailed everywhere, bore heavily on Louisiana, and sent a few planters into involuntary bankruptcy. In 1898 the Dingley bill with its sliding scale based upon polariscopic determinations, was enacted. Under this bill a tariff ranging from 1½ to 1.95 cents per pound is given on sugar—modified a few months ago only in lowering the maximum to 1.90 cents by the Payne bill.

In 1861 there were 1,291 sugar houses, of which 1,027 were worked by steam and 264 by horsepower. Nearly all of these sugar houses were open kettles, there being only about twenty-five vacuum pans and eighteen Reilleux's in the state. In the renaissance it was recognized early that both small and open kettle sugar houses had to go. Accordingly the number has been gradually diminishing and the capacity yearly increasing until to-day we have one hundred and eighty-one vacuum pans and only thirty-nine open kettle houses, with a capacity of output of over 400,000 tons of sugar per season.

A first-class, up-to-date Central Factory must have a capacity of at least 1,000 tons of cane per day. A few in this state have doubled this capacity.

It must have from two to three sets of rollers, with crushers, clarifiers, filterpresses, settling tanks, effects, vacuum pans, mixers, centrifugals, crystallizers, sulphur machines, boilers and numerous pumps. Add to the above; derricks, feeders, cane loaders, cane cars and a host of smaller apparatus, and one can form some idea of the extent and cost of a fully equipped, up-to-date sugar house. The total cost will run between $200,000 and $500,000, exclusive of the landed estate. If land enough is added, furnished with all the equipments required to make the cane needed to run this sugar house ninety days, the cost will not be far from the above figures. Fortunately the small farmers and plant-

ers are growing much of the cane used by our Central Factories, and our rapidly multiplying lines of railroad are furnishing transportation to the factories.

Cane culture involves an intensive system of agriculture, and accordingly supports more people to a given area under cultivation than any other crop.

In 1877 a Sugar Planters' Association was organized, which meets monthly and discusses every phase of progress pertaining to sugar industry. Its proceedings are published in full and read by thousands throughout the sugar world. The influence of this association upon sugar culture has been very great and is still at work since its vitality is unimpaired by age.

The Sugar Exchange in New Orleans was built in 1884, and here the buyers and sellers meet daily for the purpose of trade in sugar, syrups and molasses.

Through the Louisiana Sugar Planters' Association, the Sugar Experiment Station was established in 1885, which has since been maintained by the state and the United States government. It is located at Audubon Park, New Orleans, and has forty acres of land on which experiments in cane are conducted, excellent laboratories and a model, up-to-date sugar house where technical work of the highest order is performed. In connection with the Louisiana State University it conducts a Sugar School, with a five-year curriculum, turning out yearly sugar experts, who find remunerative employment wherever sugar is produced. In 1888 the *Louisiana Planter and Sugar Manufacturer* was started by the planters and is ably edited. It goes weekly to all sugar countries.

Economic Results.—The crop of sugar just harvested is estimated at about 350,000 long tons, and 500,000 barrels of syrup and molasses. At the

prices now prevailing this crop should bring between $30,000,000 and $35,000,000. It has given employment directly and indirectly to nearly a half million of people.

This large sum is paid out almost as fast as received, and portions of it doubtless finds its way to every state in the Union, creating an interstate trade of double the above amount. Louisiana spends several millions every year for machinery, which comes mainly from Pennsylvania, Alabama, New York, Tennessee, and Illinois. We buy our lumber and bricks from Louisiana, Mississippi, and pay approximately $600,000 a year for them. Mules are very expensive and are now costing $250 to $300 apiece. As we renew our mules every seven to ten years, the yearly cost for this item alone runs up far above $1,000,000, and we obtain them from Kentucky, Tennessee, Missouri, and Indiana. The coal and oil for our boilers come from Pennsylvania, West Virginia, Louisiana, and Texas, and runs far above a million dollars a year in value. To feed our 40,000 mules will require at least $4,000,000, or one hundred dollars per head. We buy our oats, corn, and hay from the West and they may come from a dozen or more states. Our daily bread comes from the grain fields of the Northwest; our meats, lard, etc., from the packing houses of Chicago, St. Louis, Kansas City, etc.; our butter and cheese come mainly from Wisconsin and Illinois. These provisions cost an enormous amount, in the aggregate at least $8,000,000 annually. West Virginia, Ohio, Illinois, Missouri, and Kentucky furnish us with wagons, carriages, and agricultural implements valued at $500,000.

Texas, Mississippi, Alabama, and Louisiana supply us with steaks, roasts and stews, and though at times quite inferior, mulcts us annually of nearly half a million of dollars. Alabama has a monopoly

on lime, used so extensively in the clarification of our juice. Louisiana alone furnishes the sulphur for the same purpose and both require about $500,000 yearly. The cooperage for our sugar houses descends the Father of Waters in flat boats from Ohio, Indiana, and Illinois, and carries back to these states a large amount of sugar money.

The cowpeas used in the regular triennial rotation on every plantation are very expensive, costing $1.50 to $3 per bushel. Our money for this article goes to Georgia, Tennessee, and South Carolina. We pay for fertilizers (phosphates, tankage, cotton seed meal, etc.) over $1,000,000 annually and Florida, South Carolina, Tennessee, Illinois, Missouri, Nebraska, Louisiana, Mississippi, and Texas furnish these necessities and receive the return. Our boots and shoes come from Boston, St. Louis, New York, and Philadelphia. Our clothing from New York, Chicago, Philadelphia, and Baltimore, and as all dress well, the cash that goes back to these cities is up in the millions. If we have anything left we spend it in notions, fruits, and sundries, which are gathered from Maine to California.

The above are calculations based upon facts, ascertained after careful investigation, and are believed to be approximately correct. With the above wide distribution of the money obtained from the sugar crop of Louisiana, it is probable that every citizen of this broad country enjoys some benefit from it, directly or indirectly.

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COTTON PRODUCTION IN THE SOUTH.

I.

Cotton growing, like nearly all economic pursuits in the South, suffered greatly during the War of Secession. While it is of course impossible to state accurately the extent of these losses, those due to the inability of cotton growers to raise and sell their usual crops have been estimated at about nine hundred millions of dollars.* Severe as were these losses of the war period, they can scarcely be said to have equalled those which cotton growers sustained during the years following the war, as a result of the complete over-turning of the old industrial system. The labor system of the South had been utterly demoralized by the emancipation of the slaves and the unwillingness of the freedmen to continue steadily at work under the wage system. Cotton fields were frequently planted and then neglected in their cultivation, or the crops left ungathered for want of laborers to perform the work. The cotton crop actually harvested in 1866 was probably less than a million of bales, and not until thirteen years later did the South produce a cotton crop as large as that harvested in 1860.

There was a lack of capital to make plantation improvements or even to replace the buildings and tools which had been destroyed or had fallen into decay during the war period. Land values, always low at the South, had utterly collapsed and most of the land could not be sold at any price. Credit could with great difficulty be secured by men who no longer pos-

*The estimates of various writers are given in von Halle's *Baumwollproduktion und Pflanzungswirtschaft*, II, 343–349.

sessed lands or slaves which could be offered as security for loans, and efforts to reëstablish the old system of crop-liens frequently ruined both the planter and the cotton factor because of the uncertainties of production under the new conditions. The high price of cotton in the North and in Europe which had prevailed during the war period had raised up new competitors for these markets as well as stimulated increased efforts on the part of former rivals. Naturally the cotton growers in these lands were unwilling to surrender, without a struggle, the advantages which they had gained over the Americans during the war.

In spite of these difficulties every effort possible was put forth at the South to revive the culture of cotton as quickly as possible. The high prices of this staple continued for some time after the close of the war and offered the prospect of rich returns to such men as were fortunate enough to have still on hand a portion of the cotton raised during the war, or to those planters who could successfully produce and harvest a new crop. In some respects these high prices proved in the end disadvantageous, for they not only stimulated over-production of cotton, but they also encouraged a return to the *ante-bellum* method of cultivating this crop almost exclusively, instead of continuing the system of producing along with cotton the necessary food supplies, such as had been the practice during the war.

The first and most difficult question which confronted the planting classes was how to secure the labor for the cultivation of their fields. The efforts to employ the former slaves as wage earners seldom proved successful, and there was no class of white laborers who could take their places. Immigrants from Europe began to come to the United States in large numbers at the close of the war, but few of

WEAVING ROOM IN A COTTON MILL, COLUMBUS, GEORGIA.

them found their way into the Southern states.* The poor whites in the South were unwilling to work in the fields as wage-earners along side of the negroes, and they were not sufficiently numerous in the neighborhood of the large cotton plantations to have supplied alone the labor needed. For these reasons the wage system was usually abandoned after one year's trial.†

Unable to secure labor for the cultivation of the plantations, the owners saw themselves compelled to adopt new methods for carrying on cotton production. Many of them abandoned altogether the attempt to conduct farming operations. Pressed by their creditors and forced by their own necessities, many of the old planters threw their land on the market for whatever it would bring. "Plantations that had brought from $100,000 to $150,000 before the war and even since, were sold at $6,000 or $10,000, or hung on the hands of the planter and his factor at any price."‡

The purchasers of these lands came in part from the North, being chiefly men whom political or military affairs had brought to the South and who were induced by the high prices of cotton and the low prices of the land to attempt the cultivation of this staple. In the main, however, the purchasers were found within the South itself. The poor whites whose inability to own slaves had kept them largely out of cotton growing before the war, were now eager to undertake the cultivation of this staple on the better lands offered for sale on such favorable terms. A great increase in the number of small farms took place during the years following the war. In the

*Mayo-Smith, *The Influence of Immigration on the United States of America.* Bulletin de l'Institut International Statistique. Tome III, 2eme Livraison, 46, 47.

†Report of the U. S. Commissioner of Agriculture for 1867, 416. See also von Halle, *op. cit.*, II, 379–385.

‡Henry W. Grady, *Cotton and Its Kingdom.* Harper's Magazine, Vol. LXIII, p. 721. See also von Halle, *op. cit.* II, 385–6.

ten states which constitute the cotton belt the number of farms containing less than 100 acres increased from 333,058 in 1860 to 517,178 in 1870, while the average size of farms in these states decreased during the same period from 402 acres to 230 acres.*

The freedmen participated to but a slight extent in this movement towards peasant proprietorship. Although frequently encouraged to buy land by their former masters who divided the plantations into small strips and offered these strips for sale on the installment plan, only a few of the more thrifty and industrious negroes succeeded in meeting the annual payments and becoming the owners of the lands they cultivated.† As late as 1876 the Bureau of Agriculture at Washington reported as a result of its investigations that only about five per cent. of the freedmen in the cotton belt had become owners of land.

After the failure of the wage-system the planters who had not sold their lands but continued to grow cotton with negro labor, adopted what soon became known throughout the cotton belt as the "cropping system." Under this system the plantations were divided into allotments of from fifteen to forty acres each, the smaller ones being known as "one-horse," the larger ones as "two-horse" farms. Each allotment was cultivated by a black or occasionally a white tenant "on shares." The landowner furnished the house, usually the implements and work animals, and sometimes the seed. The tenant or "cropper" performed the work and the crop was divided between him and the landowner, each usually receiving one-half, although the apportionment varied according to the locality and also according to the amount of capital furnished by the landlord.

Although the cropping system outwardly resem-

* Compiled from figures furnished by the Eighth and Ninth Censuses of the United States. See also Banks, *Economics of Land Tenure in Georgia*, Ch. II.

† Banks, *op. cit.*, Ch. IV.

COTTON MILLS, PELZER, SOUTH CAROLINA.

bled the *metayer* system of land tenure, as the share system is usually known among economists, it had this peculiarity. The "cropper" did not have possession of the land he cultivated to the exclusion of the owner, but on the contrary he was usually more or less subject to the landlord as to the choice of crops to be grown and their mode of cultivation. The cropper's position was thus intermediate between that of a wage-earner and that of a tenant.*

The system had the advantage of continuing the farming operations under the direction of the landowner while at the same time, it made the tenant share the loss due to his own neglect or carelessness. In its later development the cropping system has shown many weaknesses, but when regarded as a transitional method for enabling the Southern planter to revive the culture of cotton, there is much to be said in its favor.

The problem of securing labor having been solved, the revival and extension of cotton culture made rapid progress. Its growth extended not only farther westward in Texas, but also northward in the Carolinas, Georgia, Arkansas and Tennessee, and later in Oklahoma. For this northward extension the use of commercial fertilizers was largely responsible. Prior to the war little use had been made of manures of any sort in cotton growing, but following the war the introduction of chemical manures into the South began on a large scale. By their use not only was the yield of cotton per acre largely increased, but the maturity of the crop was hastened, so that it could be safely grown in regions where it was formerly considered dangerous to plant it, because of early frosts.† The use of manures also enabled old and abandoned lands to be reclaimed for

* Banks, *Economics of Land Tenure in Georgia*, Ch. V.
† White, "The Manuring of Cotton," in *The Cotton Plant*, 173–8

cotton culture and a great increase took place not only in the geographical area of the cotton belt but in the acreage given over to cotton growing.

This increase in acreage and yield in some of the older cotton states was sufficient to raise their percentage of total production, in spite of the fact that the center of cotton production continued to move westward. North Carolina which had produced only 2.7 per cent. of the total cotton crop in 1859, in 1876 produced 4.7 per cent. South Carolina's proportion grew in the same time from 6.4 per cent. to 7 per cent.

Aside from the use of fertilizers, there were few improvements made in the way of a better cultivation of the cotton lands during the first decade following the war. No scientific system of crop rotation was attempted, but there was an increase in the percentage of the tillable land given over to the cultivation of other crops than cotton, especially to that of Indian corn.* This tendency was far from general and was probably more noticeable on the small farms cultivated by their owners than on the large plantations. After 1870 there came a rapid fall in the price of cotton and this was perhaps partially responsible for the cultivation of other crops. Unfortunately, there were few of the cotton growers who were in a position to change from cotton to other crops.

The change from large to small scale farming, and especially the change from cotton growing by independent proprietors to that by tenant farmers had brought with it a great extension of the system of agricultural credit and had greatly increased the number of borrowers. The only security which the tenant farmer could give to the country merchant who advanced him his food, clothing, and other necessities, was a mortgage on his crops and as cotton,

* Report of U. S. Commissioner of Agriculture for 1876, 121.

SPOOLING-ROOM IN A LARGE COTTON MILL, COLUMBIA, S. C.

because of its ready sale, was much to be preferred to other crops, the merchant was obliged to demand it as security for his advances. This preference shown to cotton by the advancing merchant led to its over-production and consequent fall in price. The fall in its price usually made it impossible for the tenant farmers to pay off their debts to the advancing merchant at the close of the year and they were obliged to renew their obligations the following year with a promise to plant still more cotton.* Escape from this vicious circle proved impossible for most of the negro croppers and some of the white ones, and "the cropping system" and the system of "crop-liens" thus worked conjointly in causing over-production of cotton and agricultural depression in the South.

II.

By the year 1876 industrial reconstruction, so far as the cotton belt was concerned, may be said to have been completed. Both the "cropping system" and the "crop-lien system" were established in much the same form as they have since continued and their effects on cotton production and the general agricultural economy of the South were beginning to be realized. In other respects also, conditions in the cotton belt had reached something like their normal state. The cotton crop of 1876 was nearly equal in amount to that of 1860, and the price of cotton on the New York market was about the same as it had been at the outbreak of the war. In Europe, American cotton had regained the ground lost during the war and the succeeding decade, and cotton imports from other countries had suffered a rapid decline.†

* Von Halle, *Baumwollproduktion*, II, 651–4.
† Ellison, *The Cotton Trade of Great Britain*, Ch. VII.

For a decade and a half following 1876 cotton growers in the South were, generally speaking, in a fairly prosperous condition. A great increase in the demand for cotton took place in Europe, especially on the continent, and the demand was met in the main by American cotton. An even more rapid growth in the manufacture took place in our own country, especially in the South where cotton mills multiplied rapidly after 1870. As late as 1880 the total Southern consumption of cotton including that of the household industries was little more than thirteen per cent. of that of the Northern states. In spite of the fact that the consumption of cotton in Northern mills more than doubled between 1870 and 1890, that of the Southern mills increased six fold during the same period, and by 1905 over 40 per cent. of the American consumption took place in Southern mills. The development of cotton manufacturing in this country and on the European mainland has relieved the South of its erstwhile dependence on a single source of demand and has made market conditions far more steady than formerly.

Other steadying influences on the price of cotton have been the changes which have taken place in the methods of marketing the crop. Most important of these changes have been the development of interior buying, the establishment of cotton exchanges and the rise and growth of the system of purchasing cotton for future delivery. To many persons in the South the future delivery system in the cotton market has seemed to furnish only a means of speculation in cotton. That such has been the effect of certain practices on the New York Cotton Exchange seems certain as a result of recent official investigations, but when the system of future delivery purchasing is properly conducted it is a means of diminishing rather than increasing the speculative in-

LABOR-SAVING COTTON-PICKING MACHINE.

fluences surrounding the growing and marketing of this staple.* It has generally proved of advantage to cotton growers as well as to manufacturers.

As a result of the favorable conditions which have just been sketched, as well as of others which can only be mentioned, such as the resumption of specie payments in 1879, the development of improved means of transportation in the South, the introduction of a better class of agricultural implements and the growing use of commercial fertilizers, cotton production, except for seasonal fluctuations, showed a tolerably steady increase from 4,500,000 bales in 1877 to 9,000,000 bales in 1892. In spite of this rapid gain in production, prices did not rapidly fall until the end of the period and it was seldom during these years that "middling uplands" sank below ten cents on the New York market or five and a half pence in Liverpool.†

The prosperity which had attended the Southern cotton growers during the eighties received a sharp check in the early nineties, and during the closing decade of the Nineteenth century a severe agricultural depression existed throughout the cotton belt. The explanations given for this depression have varied greatly. In 1892 the Committee on Agriculture and Forestry of the United States Senate was commissioned to inquire into the causes of the agricultural crisis, and in 1893 this committee made an elaborate report concerning the depression in so far as it related to the growers of cotton. It concluded that the principal causes of the depression were the future delivery system in the cotton market and the demonitization of silver.‡ The committee recognized, however,

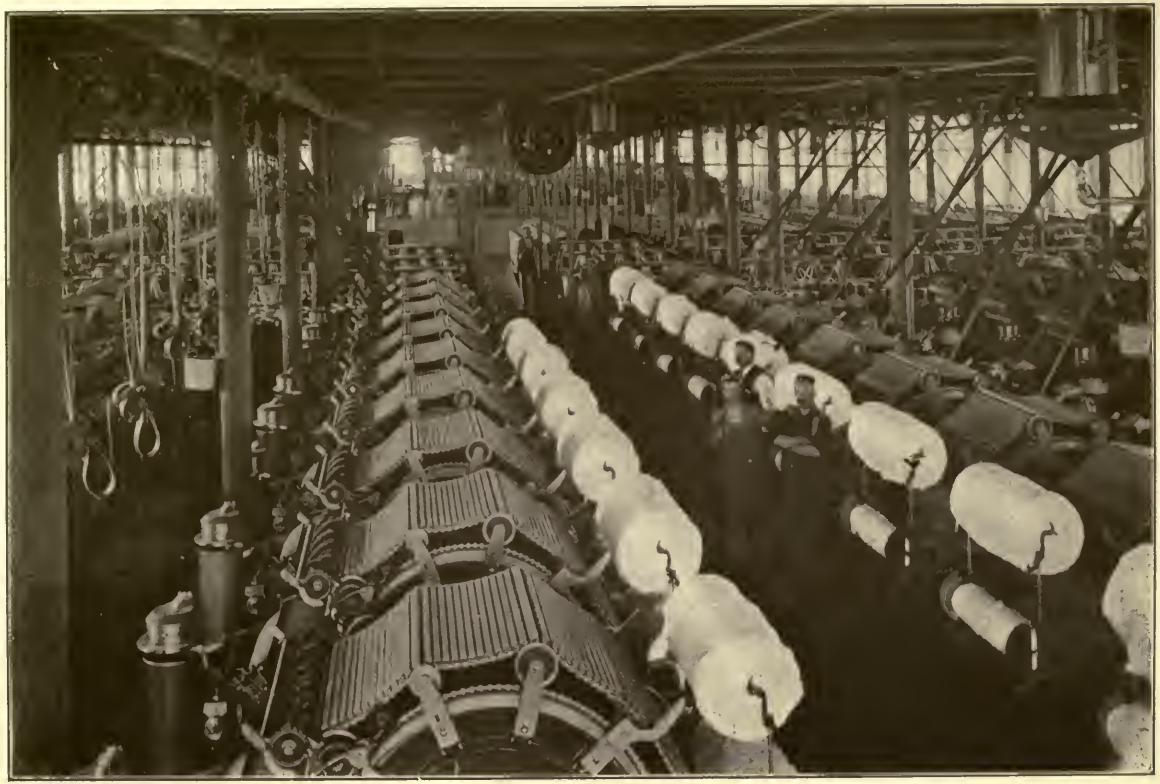
* Report of Commissioner of Corporations on Cotton Exchanges, Pt. I, Ch. 1 (1908).

† *Cotton in Commerce.* Bureau of Statistics of Treasury Department, 21 (1895).

‡ Report of the (Senate) Committee on Agriculture and Forestry on Condition of Cotton Growers in the United States, the Present Price of Cotton, and the Remedy. 53d Congress, Third Session. Report 986. Vols. I & II.

that legislation for the remedying of these supposed evils was not likely to be obtained from Congress in the near future, and its report therefore emphasized the need of self-help on the part of the cotton growers. While the agricultural depression in the South was doubtless in part due to the same general causes which during a large part of this decade produced business depression in general, the testimony taken by the senate committee and evidence supplied from other sources all tended to show that over-production of cotton and failure to raise the necessary food supplies on the plantation were the main causes for the depression, so far as it affected the Southern cotton growers. The tendency of the crop-lien system to bring about over-production of cotton and to discourage the growing of other crops has already been described and this tendency was revealed in the most striking degree during the closing years of the century. To it and to the prevailing system of land tenure, more than to any other causes, are to be ascribed the failure to diversify crops and the over-production of cotton and consequent low prices.

Closely connected with these causes and in part itself the cause of their existence, has been the unreliable labor with which the cotton planters have had to deal. Cotton has always been the crop favored by the negro cropper, and throughout the South it is generally felt that the negro as a cropper is a much less efficient laborer than he was as a slave. While it would be unfair to throw the entire blame for over-production on the freedmen and their descendants and thus to relieve the large planters of responsibility in the matter, it must be admitted that the problem of how to diversify crops in the South has been made much more difficult because of the negro's unwillingness or inability to grow other crops than cotton. In spite of some tendency on the



CARD ROOM IN A SOUTH CAROLINA COTTON MILL.

part of the negroes to leave the South, because of race antagonism and to settle in the larger cities of the North, this movement is slight in comparison with the tendency on the part of the blacks to concentrate on the rich cotton lands of southwestern Georgia, central Alabama, and the alluvial region of the states of Mississippi, Louisiana, and Arkansas.* The increase in the cotton grown by white labor since the war has been very great. Dr. Willcox estimates that in 1860 four-fifths of the cotton raised in the United States was grown by negro labor and that "at the present time (1899) probably not one-half is thus grown." † Yet this does not indicate that the negro is being driven from the cotton belt or that he is surrendering the cultivation of this staple. The increase in the cotton crop in recent years has come largely from Texas, Arkansas, Oklahoma, and other parts of the South where white labor is to be found.‡ On the other hand negroes form a larger proportion of the population in the chief cotton counties east of the Mississippi than they did in 1860, and in these counties they constitute almost the entire labor supply of the plantation. The negroes prefer to cultivate cotton rather than the food crops, because they are more familiar with its cultivation, because it will bear neglect better, because it can be readily sold for cash as soon as harvested, and because it is given the preference by the merchants in making advances.

The decade which has passed since the opening of the twentieth century has shown some signs of improvement in the conditions of the cotton growers of the South, but it has also revealed some new dangers connected with the cultivation of this staple. While the total crop has increased from 9,459,955 bales of

* *Negroes in the United States.* Bulletin 8 of the Bureau of the Census, 21–25. See also Stone, *Studies in the American Race Problem*, 84–85.

† W. F. Willcox, "Negro Criminality," in Stone's *Studies in the American Race Problem*, 450.

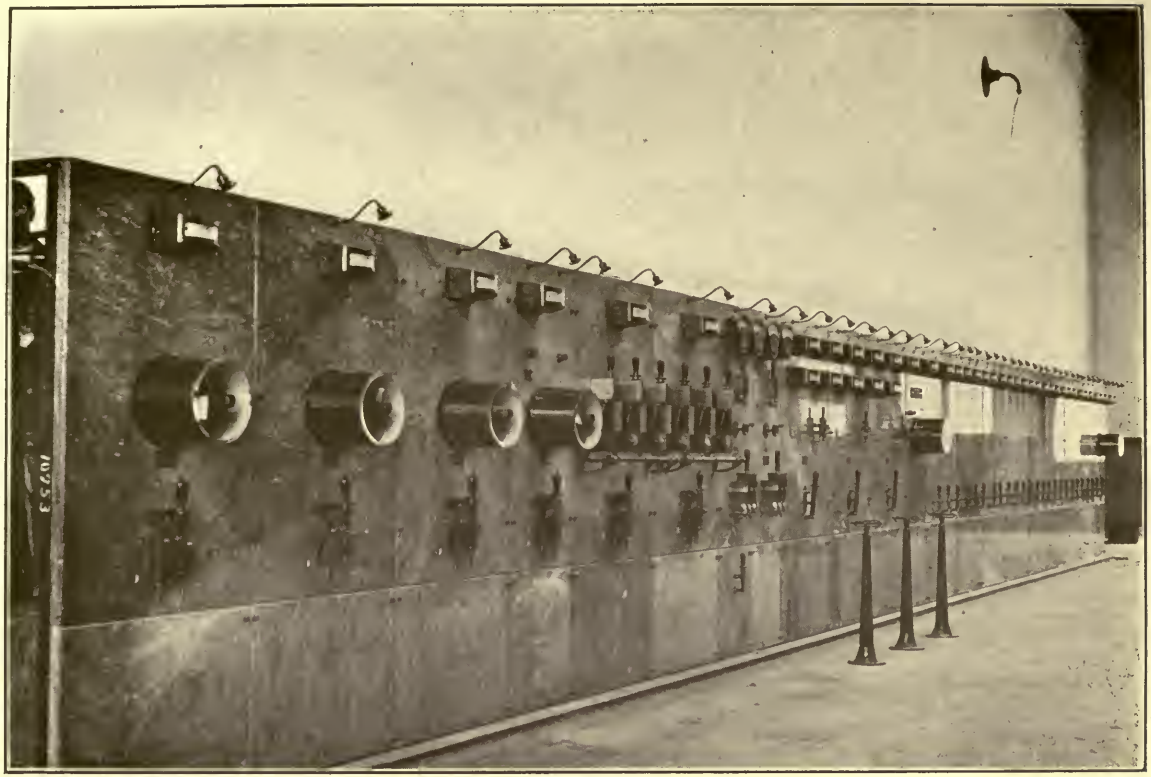
‡ Ibid.

500 pounds each in 1899 to 13,587,306 bales in 1908, the rate of increase has been slower and more steady than for the preceding decade and has not tended to outrun consumption. Prices have therefore remained at a higher level and have generally yielded profits to cotton growers. One fortunate result of this situation has been that the more thrifty of the farmers have found themselves with a cash surplus at the close of the year, and those who have really desired to relieve themselves of their dependence on the advancing merchants have been enabled by the high prices of cotton to pay off their debts and to diversify their crops. The increase in the number of country banks has also assisted the farmer in freeing himself from the exorbitant interest charges which are a feature of the crop-lien system.*

In some portions of the cotton belt diversification of crops has also been favored by the development of market gardening and fruit growing either for the Northern market or for the local markets which have sprung up in those parts of the South wherever manufactures have been established and where consequently there exists a considerable urban population.

Another and perhaps a more potent cause for the increased prosperity of the majority of cotton growers, as well as a contributing factor in the improved agriculture of the cotton belt, has been the rise of the cotton-seed oil industry and the new uses which have been found for cotton seed. Prior to the war and for some years thereafter cotton seed was regarded in most parts of the cotton belt as a nuisance and was gotten rid of with as little trouble as possible. In 1872, out of a total of 1,317,637 tons of cotton seed produced in the South only 52,705 tons were used in the oil mills. In the year ending June 30, 1909, out

* Banks, *Economics of Land Tenure in Georgia*, 52–59. Orton, *Sea-Island Cotton*, Farmers Bulletin, U. S. Department of Agriculture. No. 302, 16.



SWITCHBOARD CONNECTING ALL THE MOTORS IN A COLUMBIA, S. C., COTTON MILL OPERATED ENTIRELY BY ELECTRIC POWER.

of 5,903,838 tons produced, 3,669,747 tons were so used.* Four important products result from the use of cotton-seed in manufacture: the oil, the meal, the hulls, and the linters.† The importance of cotton seed as a by-product can be realized from the statement that in 1908 the value of the cotton seed manufactured was $86,092,583, as compared to $538,814,828, the total value of the lint cotton.‡

Although the majority of the cotton growers sell their cotton seed outright to the mills, there is a growing tendency among the more progressive planters to exchange their cotton seed at the oil mills for the cotton-seed meal and to use this meal as a fertilizer either directly or as feed for animals. About a third of the growers use the seed itself as a fertilizer, but there is a consensus of scientific opinion that this is not economical. The oil in the seeds is believed to possess no value as a fertilizer and many scientists even claim that the meal as a fertilizer is superior to the seed. Since "the value of the oil in an ordinary crop of seed in this country will approximate $60,000,000," § it would seem to be highly desirable to extract this oil before using cotton seed as a fertilizer. An even greater value is obtained from the seed when the meal and hulls are fed to cattle and sheep. Animal manures are secured in this way, which are not only superior to cotton seed or its meal when used alone as a fertilizer, but when mixed with cotton seed or meal they are generally regarded as superior to the commercial fertilizers for which the cotton growers spend annually millions of dollars.‖ Besides the manure, the farmer has the added value of the meat and dairy products. It is estimated that

* *Cotton Production*, Census Bulletin 100, 23.
† Harry Hammond, "The Handling and Uses of Cotton," in *The Cotton Plant.*
‡ *Cotton Production.* Census Bulletin, 100, 17, 23.
§ E. B. Boykin, *Comparative Value of Whole Cotton Seed and Cotton Seed Meal in Fertilizing Cotton.* Farmers' Bulletin, No. 286, U. S. Department of Agriculture, 5–6 (1907).
‖ White, "The Manuring of Cotton," in *The Cotton Plant*, 182–3.

by raising dairy cows, cotton growers could make four cents worth of protein in cotton seed yield eight and a half cents in milk and at the same time retain on the plantation all the fertilizing constituents of the cotton seed.* Livestock raising, wherever pursued in the South by the encouragement which it gives to the cultivation of corn, cow peas, and grasses, brings about the rotation of crops which is so much needed to sustain the fertility of the cotton lands.†

The most important event in the history of cotton growing in recent years has been the destruction of cotton by the boll weevil, which has proved to be the most dangerous of the many insects which have appeared from time to time to threaten the cotton crop. The weevil first made its appearance in Mexico about 1862 and put an end to cotton growing around Monclava in that Republic. About the year 1892-93 it crossed the Rio Grande River at Brownsville, Texas,‡ and has since spread eastward and northward at the rate of forty or fifty miles a year. It was not until the close of the decade that the insect was found in large numbers in the area of largest production in Texas and that its danger to the cotton crop was fully realized. In the year 1900 Texas produced a cotton crop of 3,438,386 bales which was 34 per cent. of the total production of the United States. In 1902, owing largely, if not entirely, to the ravages of the boll weevil during these years, Texas had sustained a loss of 940,373 bales, although the total production for the country had increased. The percentage of the total crop grown in Texas had fallen to 23.5 per cent. in 1902, and this state has seldom grown more than one-quarter of

* Farmers' Bulletin, No. 98, 11.

† *Suggestions to Southern Farmers.* Farmers' Bulletin, No. 98, 37. Tracy, *Dairying in the South.* Farmers' Bulletin 151.

‡ L. O. Howard, "The Insects which Affect the Cotton Plant in The United States" in *The Cotton Plant*, 335.

AREA OF RHODE ISLAND 3,872,000,000. SQUARE YARDS.
WOVEN COTTON GOODS PRODUCED IN THE UNITED STATES IN ONE YEAR 3,070,028,520 SQUARE YARDS
REPRESENTED BY THE COTTON BOLL
PROVIDENCE
RHODE
ISLAND
GREENWICH

THE MAGNITUDE OF THE COTTON INDUSTRY
From the Cotton Boll to the Finished Product.

the total crop since that time. Although Texas has suffered more than any other state from the ravages of the boll weevil, the insect has found its way into other states. By 1903 it had appeared in Louisiana,* and five years later it had crossed the Mississippi and was causing alarm among the cotton growers of Mississippi. All efforts to check the progress of the weevil by means of parasites and natural enemies among insects proved futile for a time, and entomologists have until recently held out little hope of relief from this source.† It is quite probable that the weevil will spread throughout the entire cotton belt and there is no concealing the fact that the future of cotton production in the Southern states is threatened, unless means are discovered of reducing the losses caused by this pest.

The most effective methods discovered thus far for escaping the damage caused by the boll weevil are: (1) "the growing of early and rapid fruiting cotton," ‡ and (2) cleaner and more careful cultivation of cotton, and the diversification of crops. The weevils develop slowly and do no great damage to cotton until late in the season. By a careful selection of seed, and by early planting, the most of the cotton can be hurried to maturity before the weevil has matured and most of the threatened damage may thus be avoided. In addition to this remedy, the cutting down and burning of the affected plants tends to reduce damage during the following season. "It has been demonstrated by experiments * * * that by careful preparation of the soil, by early planting, by using seeds of early maturing varieties, by keeping the fields scrupulously clean and by persistent and late cultivation * * * cotton can continue to be

* Wilcox in Stone's *Studies in the American Race Problem*, 526.
† Howard, *op. cit.*, 339.
‡ R. L. Bennett, *A Method of Breeding Early Cotton to Escape Boll Weevil Damage*, Farmers' Bulletin, No. 314, 5.

raised with a profit.'' * These methods are now being generally followed in Texas, Arkansas and Oklahoma, with the result that the percentage of the crop grown west of the Mississippi is again increasing.

In this connection it is important to note the fact that the war which is being so energetically waged against the boll weevil is being carried on by white labor. Many careful observers have expressed their grave doubts as to what will be the result, now that the pest has found its way into the part of the South where cotton is cultivated almost entirely by negro labor. Can the negro with his proverbially shiftless methods adapt himself to the conditions made necessary by the advent of the boll weevil? "Wherever the weevil appears it creates the necessity for a revolution in the entire economy of cotton production. * * * The measure of the negro's ability to grow cotton under the conditions likely to confront him in the territory east of the Mississippi will be his adaptability to these changes and his capacity to become part of the industrial revolution.'' † The decline in the amount of cotton grown in Louisiana from 1,107,000 bales in 1904 to 482,000 bales in 1908, the years when the weevil was most active in this state, where negro labor is largely employed in cotton culture, does not indicate a quick adaptability of the negro to meet the new conditions. Already the planters in this region are seeking the labor of Italian immigrants who have come into this part of the country in considerable numbers of late and have, wherever tried, shown their superiority to the negroes as cultivators of cotton.‡

Whether the boll weevil will compel the negro to

* D. F. Houston, *Cotton and the General Agricultural Outlook*, Publications of the American Economic Association, Third Series, V, 116.

† Stone, *Negro Labor and the Boll Weevil*. Annals of American Academy of Political and Social Science, XXXIII, 169.

‡ Stone, *Studies in the American Race Problem*, Ch. V.

improve his methods of farming or to surrender cotton growing altogether, there seems little doubt but that its appearance and spread throughout the cotton belt means a great change in Southern agricultural methods. Cotton will not cease to be king, but the "king" will exercise less tyranny over his subjects than he has in the past. Other crops than cotton will be cultivated, and in this way there will be secured not only a desirable rotation of crops but likewise freedom from dependence on advancing merchants for the supplies which can be and will be produced at home. Other forces than the boll weevil are at work to bring about this desirable state of affairs. The growth of the banking system in the Southern states, the development of local markets, and improved systems of transportation are all working in the same direction. At the same time the results of renewed efforts on the part of European countries to develop cotton culture in their colonies have shown that, in spite of many difficulties due mainly to the scarcity of labor, success may slowly be attained. Altogether, it is likely that while cotton will not soon cease to be the chief Southern staple, it will in the future occupy a relatively less important place in Southern economy than it has for the past century, and that the South will likewise cease to possess the monopoly in cotton growing for the world's spinners that it has so long held to the detriment of both producers and consumers.

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ton Industry (Part I, *The Cotton Culture and the Cotton Trade* (New York, 1897); and "The Southern Farmer and the Cotton Question" (*Political Science Quarterly*, Vol. XII, September, 1897); *Negroes in the United States* (*Bulletin 8*, Bureau of the U. S. Census, Washington, 1904); Senate Committee on Agriculture and Forestry: *Conditions of Cotton Growers in the United States, The Present Prices of Cotton and the Remedy*, and *On Cotton Consumption and Production* (2 vols., 53d Cong., 3d sess., *Report 986*, Washington, 1895); Stone, Alfred Holt: "Negro Labor and the Boll Weevil" (*Annals of American Academy of Political and Social Science*, Vol. XXXIII, 1909, 391); Stone, Alfred Holt: *Studies in the American Race Problem* (New York, 1908).

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CEREAL FARMING IN THE SOUTH.

AT the beginning of this period three material factors became operative, which resulted in the most stupendous development in the United States of cereal production that has ever been known in any age in any country. These factors were: (1) The general introduction of horse-drawn machinery for the preparation, cultivation, and harvesting of farm crops. The introduction of machinery for the harvesting of the so-called small grains,—wheat, rye, oats, barley, and rice,—had the most potent influence. At the time Andrew Jackson was President, the small grain was still reaped with the cradle. When General Grant was President it was still bound by hand. To harvest the present area of small grain of the United States by the methods in vogue when Andrew Jackson was in the presidential chair, would require the labor of every able-bodied man of military age for at least three weeks. The new conditions have made possible the large centres of population. In older times all other

work had to be suspended, because men, women, and children were required in the harvest fields.

The reaper came into somewhat general use in 1855. The use of the reaper in the early sixties made it possible to keep two armies in the field while the harvests were progressing.

In 1873, the self-binding harvester was invented. By 1880, it had come into rather general use, especially in the Central West. Its general introduction completed what may be justly considered a revolution in farming as well as in the economic history of this country.

Along with the development of the self-binding harvester has gone improvement and the introduction of other farm machines operated by horse or steam power. In the general development of agriculture, and hence contributing to the production of cereals, the introduction of the mowing machine and the horse-drawn hay rake has been scarcely less important than the self-binding harvester.

(2) The second factor in the tremendous rise in cereal production since 1865 was the occupation of that great, comparatively level, easily tilled prairie west of the Mississippi River. For nearly two and one-half centuries the axeman had slowly cleared his farm tree by tree. When at the close of the War between the States the returning soldiers and others passed in greater numbers over the Mississippi River into that treeless plain, they had but to turn the soil with a plow to obtain a garden. Here lay potential forces to feed an empire with a saving of labor wholly unknown hitherto in the history of the world. How well this opportunity was seized is shown by the fact that the area under the plow was more than doubled in the United States between 1865 and 1900. In other words, man was able to subdue more of the forces of nature to his uses

in thirty-five years than he had been able to do before in two and one-half centuries. Contributing to the development of the Central West in a marked degree was the passage of the Homestead Act in 1862, which practically gave to every man desiring it, 160 acres of land without cost.

(3) Coincident with the two factors above mentioned and essential to their effectiveness was the consolidation of the steam railroads into transcontinental lines, which began in 1869. Not only was the building of railroads into new territory stimulated, but it made possible the shipment of through freight and thus created a market for the rapidly increasing production of the cereals.

While the population of the United States has grown enormously during the period under consideration, the production of cereals has increased more rapidly. In 1850, there were produced in this country 2,000 pounds of cereal grains per inhabitant, while the per capita production in 1900 was 3,000 pounds. At the same time, the proportion of people living on farms has been greatly reduced, thus showing the increased effectiveness of human labor when applied to the raising of the cereals.

This brief survey of the general conditions surrounding cereal production in the United States during the period under consideration, is essential to the proper understanding of the course of cereal production in the South. Not only did the opening of the Northwest, so-called, which was especially adapted to the production of cereals at low cost have an unfavorable influence upon their growth in the South, but the character of the labor in the latter region was not such as to promote the introduction of labor-saving machinery. The South was very largely dependent upon the labor of former

slaves. It took some time to work out the most effective relationship under the new conditions. In fact, the uplift in the agriculture of the South did not become general until after 1890. A further element was that the enormous immigration which was a phase of the country's development during this period had but little influence upon the former slaveholding states.

"In the old days, when the soil was not exhausted and the demand for cotton exceeded the supply, the cultivation of this staple was immensely profitable. Then the necessity of maintaining soil fertility was not realized; planters did not know that continuous cultivation without restoring to the soil the humus it originally contained would result in its sterility. Consequently a single-crop system of farming developed. Perhaps it would be more accurate to say that the system consisted of two crops, cotton and corn, cotton being much the more important. Furthermore, cotton is an easy crop to grow, suffering less from neglect than almost any other plant, and many of the laborers adapted to its cultivation are incapable of the proper management of dairy cows or other classes of livestock. Therefore, for several generations the labor of the South was trained to grow cotton and to look upon this crop as the only source of income. The laborers of to-day naturally object to innovations, and particularly to the introduction of methods the purpose of which they do not clearly comprehend. It follows that, in order to make any radical changes in the type of farming which prevails over most of the cotton-growing section, it is necessary to train the available labor in entirely new channels and to give it a sense of responsibility not heretofore necessary. These facts account in a large measure for the continuance of cotton and corn in the position

they have so long occupied in the agriculture of the South." *

The typical power on the Southern farm is one 800-pound mule for each farm laborer, while the typical power in that section of the Central West which has been developed during the period under consideration is three 1,500-pound horses. The returns per unit of human labor has been in a somewhat similar ratio.

It is not surprising, therefore, that the small grains should have become in the South during this period relatively, and in some sections absolutely, less important than formerly. Indian corn continued to be raised because it was especially adapted to the climatic conditions, was still largely harvested by hand and because the grain is adapted to use under somewhat primitive conditions.

Thus corn and cotton became in this period more than ever the staples, and during the earlier portion of the period the almost exclusive farm crops in some sections. The South became one of the best customers of the Central West for wheat, flour, oats, and hay. The South did not even raise sufficient Indian corn for its own use. Dabney says (1896): "The planters who kept their corn cribs in Cincinnati and smokehouses in Chicago have either failed or learned better. The younger generation of cotton farmers grows its own corn and its own fat hogs." †

Taking the region as a whole, the cereals, excepting rice, have not been what are termed cash crops. Even the wheat has been largely ground at the local mill for home consumption. The staple cash products of the Southern farms have been cotton, tobacco, sugar, and rice.

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* Spillman, W. F., U. S. Department of Agriculture *Year Book*, 1905, 194.
† *Progress of Southern Agriculture.*

There is no part of the United States where so large a proportion of the plowed land is planted to intertilled crops. This results in the exposure of the more or less bare soil to the winter rains. Unlike the lands farther north which are protected by freezing and by snow, these Southern soils are exposed to leaching and erosion during the winter months.

The cotton crop removes through its lint and oil almost no plant food, provided the cottonseed meal is returned to the soil. The fertility of the soil, therefore, would be easily maintained were it not for the destructive influence incident to the tillage of the soil. As a matter of fact, however, there has been no other equal area in America where commercial fertilizers have been so extensively and successfully used as in the South. White says: "Since the close of the Civil War to the present time practically all of the cotton cultivated in the United States, with the exception of comparatively small quantities grown on the alluvial soils of great river bottoms and occasional areas of newly-cleared land, has been fertilized with concentrated manures. Probably upon no other crop to which they have been applied have these manures exercised so great an influence as upon cotton. Not only were profitable crops made with them upon lands which without them it would not have paid to cultivate, and an immense area of wornout land thus redeemed to culture, but the stimulant effect of the manure so shortened the period of growth and maturity of the plant that the climatic limit of culture was extended. Cotton soon came to be grown abundantly over large regions where, previous to the introduction of such manures, killing frosts intervened before the maturity and fruitage of the plant. The enormous increase in

the cotton production of the United States since 1860 is undoubtedly to be credited chiefly, if not exclusively, to the use of concentrated manures." *

Since cotton and corn follow each other on the same field commercial fertilizers must be credited with a considerable influence upon the corn as well as upon the cotton. Fertilizers have also been extensively applied directly to corn and other cereals.

Another factor in the growth of cereals in the South has been the general lack of meadows and pastures, taking the region as a whole, although there are some notable exceptions, such as the blue grass region of Kentucky. The greatest need of Southern agriculture is a well organized system of animal husbandry. The fundamental reason for the lack of it in the past has been the ill adaptation of the introduced grasses to the South.

Considerable progress has been made in recent years towards the introduction of forage crops, especially leguminous plants. Among the leguminous crops may be mentioned crimson clover, soy beans, Japan clover, burr clover, and winter vetch, each of which is adapted to certain sections. The growth of alfalfa has been spreading particularly in certain limestone areas. The one all-pervading forage crop and soil renovator is the cow pea. Because of its wide adaptation and the ease with which it can be grown it transcends all other forage crops in its importance to the South. While the cow pea was introduced from Asia by a South Carolina planter early in the Eighteenth century, it is only during the present period that it has been extensively grown.

The forage crops above mentioned offer a winter cover for the land, thus reducing erosion, add nitrogen to the soil and through the forage they produce,

* U. S. Dept. Agr., Official Expt. Station *Bulletin* No. 33 (1896), 172.

make the keeping of livestock possible and thus lead to a diversified agriculture.

The rotation or succession of crops has not been very systematically practiced in the South. "Notwithstanding that a well-ordered system of rotation of crops has been demonstrated to be of great value, the continuous culture of cotton year after year on the same land has been and still is in large measure the common practise. The following rotation is the one best suited to the largest number of cases under existing economic conditions: first year, maize with peas between the rows to be harvested for seed; second year, wheat or oats followed by cow peas for hay after the cereal crop has been removed; third year, cotton. If more cotton is essential, cotton follows cotton, making a four-year rotation. If more maize is wanted, land may be planted to the crop two years in succession instead of two years in cotton.

" After many years' experience the Georgia Station asserts that the increased production of the station farm is due more to the adoption and maintenance of a regular system of rotation than to any other practise, and that the recurring crop of cow peas following the small grain is the most valuable and efficient detail of the rotation system adopted." *

Where tobacco is the main cash crop, the rotation may be tobacco, wheat or rye, and clover each one year. A more extended rotation in the blue grass region of Kentucky is tobacco, two years; corn, three years; wheat, two years; clover, two years, followed by timothy and Kentucky blue grass remaining several years.

Where wheat is the main cash crop, as in Maryland, the rotation may be corn, first year; wheat or oats, second year; wheat, third year; clover and

* Hunt, Thomas F., *The Forage and Fiber Crops in America*, 344.

timothy, fourth year; timothy, fifth year. In other sections corn is grown two years and the small grain reduced to one year. In regions where corn becomes the main crop, as in Missouri, corn may be grown from one to five years followed by oats or wheat, which in turn is seeded to clover and timothy and allowed to stand for two or three years.

An acreage something less than two-fifths of the improved farm land in the South was in cereals in 1899.* The improved land in the South constitutes about 14 per cent. of the total land area of that region. In other words, then, about 6 per cent. of the land in the South was in cereals. To prevent misinterpretation of these figures, it should be stated that in the United States as a whole, the improved farm area was but 22 per cent. of the total land surface of continental United States, exclusive of Alaska, and that the area in cereals constituted but 10 per cent. of such land surface in 1899.

When the census taker makes his rounds he fails to find all the improved farm land in crops. Thus

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* TABLE I.

Showing acreage and value of crops, and acreage of improved land in 1899 according to the Twelfth Census.

	Acres in Cereals.	Acres of all crops.	Acres improved land.	Value of all crops.	Value of all Cereals.
Maryland.....	1,368,265	2,031,995	3,516,352	$29,046,607	$14,505,992
Virginia.....	3,166,332	4,553,584	10,094,805	54,904,626	23,759,479
West Virginia.....	1,307,428	2,135,285	5,498,981	23,063,209	11,571,339
North Carolina....	3,794,064	5,769,954	8,327,106	63,708,921	22,082,175
South Carolina....	2,251,050	4,751,385	5,775,741	56,975,133	12,722,415
Georgia.....	4,150,886	8,412,907	10,615,644	83,128,224	20,481,157
Florida.....	607,322	1,062,331	1,511,653	12,850,168	2,906,332
Alabama.....	3,088,454	6,792,368	8,654,991	70,696,268	18,424,318
Mississippi.....	2,372,065	5,611,114	7,594,428	81,860,150	19,317,968
Louisiana.....	1,573,759	3,421,751	4,666,532	61,272,676	14,491,796
Texas.....	6,932,791	15,236,576	19,576,076	163,444,678	47,132,566
Arkansas.....	2,980,684	5,241,537	6,953,735	56,803,494	20,233,270
Oklahoma.....	2,840,373	3,971,309	5,511,994	26,612,442	19,093,722
Missouri.....	10,423,745	14,827,620	22,900,043	117,012,895	79,574,841
Kentucky.....	5,085,529	6,582,696	13,741,968	74,783,365	39,692,771
Tennessee.....	5,055,328	6,890,550	10,245,950	65,658,618	36,914,592
Total South.....	56,999,975	97,292,962	144,985,999	$1,040,921,474	$402.904,733
The UnitedStates	184,994,588	289,821,549	414,793,191	2,910,138,663	1,484,231,038
Per cent. South...	31	34	35	36	27

while the area of improved farm land was 22 per cent. of the total land area in the United States, that occupied by farm crops was only 15 per cent. of such area. In the South the acreage in cereals constitutes about two-fifths the area of improved farm land, while this area constitutes about three-fifths of that in all farm crops.

The value of the cereals constituted in 1899 about one-half the value of all crops, thus showing the higher value per acre of cotton and other crops as compared with the cereals. Throughout this whole period, writers almost without exception have maintained that the Southern farmer has suffered because of his reliance upon the one-crop system of farming consisting of either cotton, tobacco, rice, or sugar. In recent years, the Experiment Stations and the United States Department of Agriculture have, by experiment and example, tried to induce the Southern farmer to practise a more diversified agriculture. While there is no doubt that the doctrine is correct, the fact remains that the value per acre of the staples above mentioned has been high compared with that of the cereals. The motive for keeping a large area in a single crop has been a strong one.

While the cereals constituted about three-fifths of all farm crops, cotton occupied about one-fourth of the area. In some states, however, the proportion of cotton has been much greater. For example, in 1899, cotton constituted more than one-half of all crops in Mississippi and between two-fifths and one-half of all crops in Alabama, Georgia, South Carolina, Louisiana, and Texas.

While the total bushels of cereals in the South has increased during the forty years between 1859 and 1899, there has been a marked decrease rela-

tively.* In the United States the total production of cereals increased about four times in the forty years; in the South it has about doubled.

The largest part of this increase has occurred in the states west of the Mississippi River. Thus Missouri, Arkansas, Louisiana, and Texas in 1859 grew 137,096,769 bushels of cereals, while those states and Oklahoma in 1899 produced 538,661,519 bushels, or about one-half of the total production of the South. The rate of increase in the five Western states has been as rapid as in the United States as a whole, while in the Southern states east of the Mississippi, the production of the cereals has remained about stationary during the period under consideration.†

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*TABLE II.

Showing the production of the cereals in the South.

	Total bushels in the South.	Per cent. of total in the United States.
1859	523,345,129	42.1
1869	419,775,732	30.2
1879	719,747,997	26.7
1889	826,770,972	23.4
1899	1,040,138,940	23.4

†TABLE III.

Showing the yield in bushels of the cereal crops in 1879 according to the Tenth Census.

	Wheat.	Rye.	Indian Corn.	Oats.	Barley.	Buckwheat.
Maryland..	8,004,864	288,067	15,968,533	1,794,872	6,097	136,667
Virginia.....	7,826,174	324,431	29,119,761	5,333,181	14,223	136,004
W. Virginia	4,001,711	113,181	14,090,609	1,908,505	9,740	285,298
N. Carolina.	3,397,393	285,160	28,019,839	3,838,068	2,421	44,668
S. Carolina.	962,358	27,049	11,767,099	2,715,505	16,257	....
Georgia....	3,159,771	201,716	23,202,018	5,548,743	18,662	402
Florida....	422	2,965	3,174,234	468,112	210	....
Alabama ..	1,529,657	28,402	25,451,278	3,039,639	5,231	363
Mississippi.	218,890	5,134	21,340,800	1,959,620	348	....
Louisiana..	5,034	1,013	9,889,689	229,840	....	....
Texas.....	2,567,737	25,399	29,065,172	4,893,359	72,786	535
Arkansas ..	1,269,715	22,387	24,156,417	2,219,822	1,952	548
Missouri...	24,966,627	535,426	202,414,413	20,670,958	123,031	57,640
Kentucky..	11,356,113	668,050	72,852,263	4,580,738	486,326	9,942
Tennessee..	7,331,353	156,419	62,764,429	4,722,190	30,019	33,434
Total South	76,597,819	2,584,799	573,276,554	63,923,152	787,353	705,501
The United States...	459,483,137	19,831,595	1,754,591,676	407,858,999	43,997,495	11,817,327
Per cent. South....	17	13	33	15	2	6

Wheat raising has decreased in the Carolinas, Georgia, Alabama, and Mississippi, while in the states farther north, including Maryland, the Virginias, Kentucky, and Tennessee, this industry has rather more than held its own. The increase in Kentucky and Tennessee has been, in fact, rather marked. This crop, however, has reached its greatest development in the South in Missouri, Oklahoma, and Texas. The yield of wheat in these three states in 1899 was 53,483,608 bushels, or 47 per cent. of the total production in the South. Neither Florida nor Louisiana has ever been a wheat-growing state.

Rye has never been extensively grown in the South. Its production has steadily decreased throughout the different states.

The great cereal crop of the United States, Indian corn, becomes in parts of the South the almost exclusive cereal, as, for example, in Mississippi and Louisiana. In no state does any other cereal approximately equal it in extent of cultivation. In every state its production has increased during the period under consideration. It occupied in 1899 about three-fourths the area in cereals.

An important feature of this crop is its universality. In the case of other important farm crops grown in the South, each has its special environment in which it does best and hence its special region where it is chiefly grown. Indian corn is an important crop in every state and almost on every farm.

While there has been a large increase in the production of Indian corn in the South during this period, the percentage raised compared to the total production has decreased on account of its tremendous development in the Central West. In 1859, the South produced more than one-half the Indian

corn in the United States, while in 1899 the production had fallen to 30 per cent.*

If the comparatively newly developed states of Missouri, Oklahoma, and Texas be omitted, the culture of oats in the South during this period has been about stationary. There has, however, been some shifting of the area under cultivation. The states that have decreased their wheat production have generally increased somewhat their production of oats, while the tendency in the states that have maintained their wheat production has been to limit the growing of oats. There has, however, been a large increase in the growing of oats in the states on the western border of this area. In 1899, Missouri, Oklahoma, and Texas produced about three-fifths of all the oats grown in the South.

Barley, never an important crop, except in a few states, has become much less important than formerly. Kentucky furnishes the most striking example of this movement. In 1880, Kentucky was an important barley-growing state. In the course of two decades the crop has been almost eliminated.

Buckwheat, a minor crop, has always been chiefly grown in the highlands of the Appalachian region

* TABLE IV.

Showing the yield in bushels of the cereal crops in 1899 according to the Twelfth Census.

	Wheat.	Rye.	Indian Corn.	Oats.	Barley.	Buck wheat.
Maryland.	9,671,800	279,550	19,766,510	1,109,560	42,560	115,950
Virginia..	8,907,510	246,834	36,748,410	3,269,430	53,346	244,321
W. Vir....	4,326,150	111,031	16,610,730	1,833,840	3,660	267,257
N. Car....	4,342,351	133,730	34,818,860	2,454,768	4,237	52,572
So. Car...	1,017,319	19,372	17,429,610	2,661,670	3,106	41
Georgia ..	1,765,947	54,492	34,032,230	3,115,610	2,290	26
Florida...	800	4,870	5,311,050	297,430	320	....
Alabama..	628,775	11,123	35,053,047	1,882,060	2,400	70
Mississippi	37,257	963	38,789,920	862,805	330	....
Louisiana.	2,345	372	22,062,580	316,070	110	....
Texas....	12,266,320	42,770	109,970,350	24,190,668	80,366	333
Arkansas.	2,449,970	19,125	44,144,098	3,909,000	2,809	421
Oklahoma	18,124,520	41,220	38,239,880	5,087,930	346,730	170
Missouri..	23,072,768	220,338	208,844,870	20,545,350	28,969	21,480
Kentucky	14,264,500	155,365	73,974,220	4,009,830	17,772	879
Tennessee	11,924,010	107,912	67,307,390	2,725,330	21,636	8,597
Total So..	112,802,342	1,449,067	803,103,755	78,271,351	610,541	712,117
The U. S..	658,534,252	25,568,625	2,666,440,279	943,389,375	119,634,877	11,233,515
Per cent. South..	17	6	30	8	0.5	6

extending from New York to North Carolina. It is still grown in considerable quantities in portions of Maryland and the Virginias, but less so than formerly.

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GRASS AND FORAGE CROP FARMING IN THE SOUTH.

IT has been stated* that during the twenty-five years preceding the war a very general interest in the value of hay and forage crops had been developed. Moreover, many experiments had been made through individual effort to determine the value of these various crops in diverse regions. A systematic study of the various problems involved still remained, however, a chief desideratum of Southern agriculture. Four distinct needs were felt by every intelligent cultivator, namely: (1) improved pasturage, (2) increased hay production, (3) more attention to soiling crops, and (4) the growth of leguminous forage crops for the renovation of the soil.

The first three needs were imperative in order that animal production might be quickened and animal improvement might be made possible. Upon a better development of an animal industry depended not merely a system of farming immediately more

*Volume V, article, "Grass and Forage Farming in the South."

economic, but also a system which in the end would secure the proper return to the soil of the fertilizing constituents of the soil, and the prevention, in a large part, of soil depletion and deterioration. The fourth need was directly and immediately concerned with the improvement and amelioration of the soil by growing crops as green manures, or by growing forage crops which, while serving as food for animals, would yet introduce a rotation system which would in part bring about improvement of the land.

It is impossible to make special mention of the many persons who were conspicuous in one way or another in the renewed efforts made some twenty years or more ago to improve general conditions of grass farming. The Federal Department of Agriculture, the State Experiment Stations—then fairly organized and equipped,—and the hearty coöperation of progressive planters and land-owners were all contributing factors in the results eventually accomplished. The effect of the work then begun is now beginning to be fully realized, and an unusual development is assured through those who have succeeded to leadership in these fields of effort.

Prof. D. L. Phares, of the Mississippi Agricultural and Mechanical College, was the first early authority on the Southern forage crops and grass to put his knowledge into print. He prepared a small but comprehensive book on this subject, which became the basis of subsequent studies, explorations, and tests, made for more than a decade after 1885 under the direction of Dr. George A. Vasey, botanist of the United States Department of Agriculture. About 1888 the interest in grass work culminated in the establishment, at the Mississippi Agricultural Experiment Station, of a special department, or station, for the investigation of grasses and forage plants. This work was in charge of Prof. S. M.

Tracy, who has, in subsequent years, contributed much to our knowledge of the adaptability of forage plants to Southern conditions, especially to the conditions in the Gulf states.

With respect to hay, as previously suggested, the South is not within the region of profitable timothy (*Phleum pratense*) culture, and red clover (*Trifolium pratense*) has not generally given such success as is obtained farther north, possibly because it is too often sown upon the poorer soils. Red top (*Agrostis*) and alsike clover (*Trifolium hybridum*), may be grown in low-lying lands. Among the grasses and forage plants which have been, in general, typically successful and important over areas more or less extensive are the following: Bermuda grass (*Cynodon Dactylon*), Johnson grass (*Sorghum halepense*), crab grass (*Digitaria sanguinalis*), carpet grass (*Paspalum compressum*), water grass (*Paspalum dilatatum*), guinea grass (*Panicum maximum*), Texas blue-grass (*Poa arachnifera*), and, in the Northern portion of the South, Kentucky blue-grass (*Poa pratensis*). The other staple forage crops are such as cowpeas (*Vigna unguiculata*), alfalfa (*Medicago sativa*), lespedeza (*Lespedeza striata*), sweet clover (*Melilotus alba*), vetch (*Vicia villosa*), and velvet bean (*Mucuna utilis*), besides such important soiling crops as sorghum and millet.

The economic influence of some of these crops has been most important, and short statements regarding the uses of those which have contributed notably to the agricultural advancement are requisite.

Bermuda grass is perhaps the most extensively grown pasture crop throughout the South. In the Gulf section it may give the longest pasturage of any single crop, and on good moist land it may serve as hay. In moist pastures Bermuda is frequently supplemented by carpet or water grass, and again, es-

pecially where the pasturage is not primarily for horses, by white and bur clover, or lespedeza, depending upon the conditions. Bermuda grass forms a close sod, and for a long time it was regarded as such a pernicious weed in cultivated fields that many hesitated to employ it except in the most permanent pastures. It is now known to be readily eradicated where proper methods are used. So far as can be seen it must remain in the Gulf states as important as Kentucky blue-grass is farther northward.

Johnson grass is now one of the most important of Southern hay crops. It is a native to Asia, where it is generally termed millet. It is said to have been introduced into the South from Turkey about 1840, and it is occasionally mentioned in agricultural reports as well-established in Georgia and Alabama prior to 1850. Few plants have taken possession of any land more rapidly than this plant has swept across the Southern states. It produces seed, but the difficulty of its eradication is primarily due to the vigorous development of rootstocks. It is limited by cold, and commonly restricted to regions where the ground freezes only a few inches. With present methods of eradication it is not considered an unconquerable grass; nevertheless, in many sections of the Gulf states it has effectively driven out cotton growing, and rather than fight it many growers have turned their plantations into hay fields. It is a sorghum, and although weedy in appearance is preferred by animals to timothy. For most farm stock it is a better food than the latter.

Crab grass, another native of the old world, has followed the cultivation of cotton and corn in the South and has been chief among the natural hay and temporary pasture crops. It has contributed more, perhaps, than any other crop to the maintenance through the winter of miscellaneous animals. It is

a typical summer grass, and makes a quick growth on soils of very diverse fertility during the late summer and early autumn, after some crops, especially corn, are laid by; then, if not pastured during the early autumn, it is self-cured during the dry weather of that season, and affords good grazing until the wet weather of the later winter. In conjunction with bur clover or other early spring leguminous crops it makes, in some sections, very good semi-permanent pastures or meadows.

The cowpea is a true legume, and properly a bean, which is considered to have been a native of a district between the Caspian Sea and the mountains of India. It has been cultivated for two thousand years or more, but became important in the West Indies late in the Seventeenth century, and subsequently in the southern United States. It has taken its place among important Southern crops during the past twenty-five years, but was cultivated more or less during the century preceding that time. This plant is taking a leading part in the renovation of Southern soils; and although somewhat difficult to cure, it is a rich and important hay. It is grown independently in a rotation, employed to follow cereal or other early crops, and may be planted between the rows of corn at the last plowing, or grown between the beds of small fruits in the orchard or garden. Turned under as green manure, permitted to decay in place, or harvested as hay, it gives alike valuable returns on a great variety of soils. The use of this plant has spread as far northward as Pennsylvania, and for the South it has unparalleled value.

Among the many other legumes, such as the vetches, clovers, beggar weeds, etc., which are valuable in the South for pasturage, hay, and general soil improvement, perhaps no species supplements the cowpea so well as the introduced melilotus or honey

clover. It thrives alike upon many well-tilled and unbroken soils, and has proved the only crop capable of successfully redeeming the poorer rotten limestone soils of the Gulf states. It is regarded as a weed in the North and West, but even there it will come to have value. Animals of all kinds learn to relish it both in the pasture and as hay. With proper handling and in connection with certain grasses it furnishes either temporary or semi-permanent pastures and meadows.

From what has been said of these few important forage crops it is further evident that this phase of the agriculture of the South, has, like cotton growing, developed along independent lines. Not one of the most important crops mentioned had established preëminence in any part of Europe. Now that the relative values of these crops in different states and sections are fully appreciated, far more rapid advancement may be anticipated in the general development of mixed farming. The development in hay farming since the war is indicated in the table below:*

STATISTICS FOR HAY—1860–1908.
(Data for Maine, New York by way of comparison.)

States.	Production in Tons.				
	1860	1876	1896	1906	1908
Maryland	157,986	237,000	273,297	353,167	480,000
Virginia	369,098	256,000	636,682	534,066	618,000
North Carolina	145,653	116,200	177,616	193,475	262,000
South Carolina	20,925	24,000	190,903	88,596	81,000
Georgia	23,449	23,600	189,735	145,289	152,000
Florida	2,510	†13,000	9,407	30,000	26,000
Alabama	32,685	24,000	92,385	109,882	176,000
Mississippi	12,504	23,500	83,236	83,359	122,000
Louisiana	25,750	‡15,000	46,970	41,472	31,000
Texas	8,354	80,000	324,622	683,705	1,072,000
Tennessee	74,091	165,000	493,807	512,563	600,000
Kentucky	113,747	363,000	462,479	603,723	675,000
Arkansas	3,976	23,000	187,632	113,491	297,000
Oklahoma and Indian Territory	no data	no data	§80,000	{ 64,596 / 418,557 }	1,305,000
Missouri	116,925	750,000	3,298,201	2,128,112	4,350,000
Total for South	1,108,653	2,113,300	6,646,972	6,104,053	10,247,000
Maine	755,889	1,264,800	939,192	1,595,802	1,260,000
New York	3,728,797	5,600,000	3,434,228	6,038,580	5,717,000

*The above statistical summary affords a view of the salient points respecting the development of hay-making in the various states. Data for 1860 are included for comparison with the preceding epoch.

†Yr. 1869; ‡Yr. 1875; §Estimated.

It is evident that the percentage increase in hay production in the South generally is greater than in the old hay states. Such states as Arkansas, Texas, Missouri, and Tennessee show a rate of increase wholly commensurate with the enormous developments in Wisconsin, and other newer regions. On the other hand, the total acreage in the South, should we only omit Missouri, is still relatively small, and does not exceed that of New York. That the production is not equal to the demand is shown in a most convincing way by a study of the farm values of hay North and South. Since 1866 the average value of hay in Georgia has been about $22, whereas in New York it has been about $14. This is true in spite of the fact that, in general, in the one region the great majority of animals are pastured eight months and fed four, whereas in the other region practically the reverse is true.

In many of the states this crop is not yet grown on a scale sufficiently extensive to justify the use of all modern harvesting machinery. The failure to employ such machinery means generally, of course, that the product must be used only locally, yet this must be looked upon as an advantage where it serves to encourage animal industry,—an industry, however, which requires also good labor. The general tendency of this line of crop work is rapidly in the direction of a greater appreciation of the necessity of a permanent system of soil fertility in progressive agriculture.

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THE SOUTHERN PRODUCTION OF HEMP AND FLAX.

In 1866 the demand for hemp and flax was very strong, owing to the continued scarcity of cotton. Hemp and flax were worth about three times the normal prices, but the collapse of the slave system rapidly destroyed the hemp and flax industries. Most of the linen homespun had been made by slave women, and emancipation instantly put an end to that industry. In the mountain regions many of the poorer white families continued to make homespun linen until about twenty years ago. Kentucky produced about 100 tons of flax in 1870, and 25 tons in 1880: Virginia raised 60 tons in 1870, and 30 tons in 1880: West Virginia and Tennessee each raised about 40 tons of flax in 1870, and a few scattering tons were grown in the other Southern states; but since 1880 practically none has been grown for its fibre. On the other hand, the improvements in reaping and thrashing machinery temporarily increased the culture of flax for its seed, especially in Missouri, where the flax is handled wholly by machinery. During the eighties Missouri averaged about 45,000 acres of flax, which produced about 400,000 bushels of flaxseed a

year. Virginia, Maryland, West Virginia, Kentucky, North Carolina, and Texas produce considerable flaxseed, ranking in the order given.

The hemp industry was not so quickly prostrated by the collapse of slavery, and hemp is still a staple crop in Kentucky; but it has been gradually driven out of the market because of its inadaptability to machine handling. It is hardly profitable, unless 1,500 pounds of it can be produced per acre, and that requires the best soil. Many machines have been designed to cut and break hemp, but they have never displaced the hand processes. In its production, hemp finds a strong competitor in tobacco, and in its manufacture it must compete with jute, sisal, and manilla.

In 1860 Kentucky produced about 40,000 tons of hemp, and Missouri about half that amount. During the war Missouri's yield rose to 28,000 tons a year. In 1870 Kentucky raised only 7,700 tons of hemp, and Missouri only 2,800 tons. Missouri had declined to 209 tons in 1880, and has raised practically none since. Kentucky raised about 10,000 tons in 1873, 4,582 tons in 1880, 10,784 tons in 1890, and has since fluctuated between 2,000 and 9,000 tons.

By 1866 the only large market left for hemp was in the manufacture of bagging and bale rope for covering cotton bales. The removal of the land-and-sea blockade from the Southern states threw a great demand upon the Kentucky and Missouri hemp mills, and these failed to meet the sudden rush of business. In 1870 the Kentucky mills made $1,752,120 worth of bagging, and $178,182 worth of rope; while the Missouri mills made bagging worth $750,000. In 1870 most of the Kentucky bagging was made at Lexington and Frankfort, in the centre of the hemp-growing district. The rapid rise in the cost of negro labor caused these bagging mills to shut down. The river

towns continued to make bagging for several years longer, but the industry gradually drifted to the East, where practically all of the cotton bagging is made of jute butts.

The close of the war found all the American shipping destroyed. A great deal of hemp rigging was used in the coasting trade during the seventies; since wire cables were too rigid to be used for sails; but with the perfection of donkey engines for hoisting, larger boats became possible, and manilla ropes displaced hemp.

The improvements in wheat harvesters, which followed the war, created a large market for hemp in making binder twine. When the demand for twine grew into thousands of tons, other fibres came into use, especially sisal and manilla. When the demand for twine advanced to hundreds of thousands of tons, hemp was displaced altogether in the consolidation of the twine factories. When the sisal monopoly raised the price of twine, the International Harvester Company took up the question of hemp culture in competition with sisal, and produced an unrotted hemp fibre by machinery, in Kentucky, which at one time, during the later nineties, promised to grow into a large industry.

At present the chief market for Kentucky hemp is in the manufacture of carpet stock in Boston. Some is also used in making fine wrapping twine and cordage, especially hangman's rope.

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THOMAS BRENT MOORE,
Author of Hemp Industry in Kentucky, etc.

VEGETABLES, FRUIT AND NURSERY PRODUCTS AND TRUCK FARMING IN THE SOUTH.

THE growing of fruit and vegetables is dependent upon certain favorable natural conditions. The placing of these perishable products upon the market one or two days earlier spells the difference between profit and loss, for to-day they are luxuries while to-morrow the market may be glutted. In the production of truck especially, season, soil, climate, and location play an important part. If the soil is very sandy, it will heat up more quickly in the spring and will also mature its crop with greater rapidity. The climate must be uniform and mild, for sudden variations in temperature and hard freezes constitute the nightmare of the truck grower. The season must also be early, while location is quite as essential as any of the other factors, since it will determine the climate to a large extent, and the ease and rapidity with which markets may be reached. It is not surprising, therefore, that some of the most famous

trucking areas of the South should be situated along the Atlantic Coast from Maryland to Key West, as large bodies of water help to maintain a uniform temperature and insure the early maturity of the crop. Since most truck soils are deficient in plant food, they must be enriched, for vegetables are only palatable when quickly matured. This difficulty has been overcome through the use of commercial fertilizers, and the truck business has thus indirectly been the means of stimulating what now constitutes a great and growing industry in the South—the manufacture of commercial plant food, of which millions of dollars worth are consumed annually in the production of garden and orchard crops.

That the fruit and truck industries of the South have made marvelous progress in the last few years is admitted by all familiar with the situation. This has been brought about not only by favorable natural conditions and the use of fertilizers, but by the dissemination of knowledge with reference to spraying plants and trees which effectually enables the horticulturist to protect them from the depredations of various insect pests and fungous diseases, which until recent years proved a serious obstacle to the advancement of the trucking interests. Labor is another essential element of this industry. It must be cheap and abundant, especially at certain seasons of the year, and on this account many trucking areas are located rather close to large cities, which not only afford a considerable market for home consumption, but also provide excellent shipping facilities. Now that the refrigerator car has come, truck and fruit of the most perishable character can be shipped long distances and placed on the market in the best possible condition.

That the trucking industry has done much for the South is witnessed by the fact that land in the vi-

cinity of Norfolk, Virginia, and many other centres which not long ago sold at a few dollars an acre now frequently brings as much as $1,500 per acre. There are men engaged in the trucking business in various parts of the South who do not own more than five or ten acres of land, and yet are able to make a living for a good-sized family, and increase their wealth from year to year. In some instances truckers in favorable seasons have cleared from $500 to $1,000 per acre. This shows the intensive character of the business and the profits which may be made therefrom when it is conducted along the latest and most scientific lines. The fruit and trucking industries bring millions of dollars into the South every year, and have enhanced the value of lands many times, have given employment to thousands of persons, have had much to do with the rapid development of many of our towns and cities with their varied industries, and supply the railroads with a considerable per cent. of the tonnage they haul. As a result, the fruit and truck industries have exerted a marked influence on the development of Southern agriculture, and, by giving diversity and variety to the crop, have insured better prices for many of the staples produced on the farm.

The first shipment of truck by rail from Norfolk occurred in 1885; from the region in the vicinity of Newbern, North Carolina, in 1887, and from Charleston, South Carolina, in 1888. The first carload of oranges was shipped from Florida in 1888, and of strawberries in 1889. This will indicate to the reader how marvelously the vegetable, fruit and trucking industries of the South have developed in the last quarter of a century, and how meagre their proportions were previous to 1865. Peaches and tomatoes were first shipped by rail from Crystal Springs, Mississippi, in 1866; strawberries from

west Tennessee in 1875, and from these initial efforts the strawberry industry spread to Louisiana and Arkansas. In the early days the shipment of a single carload of fruits or vegetables was regarded as something phenomenal. From many of these same sections, it is now not unusual for from seventy-five to one hundred cars to be shipped a day, while the aggregate runs into the thousands a year.

The substantial development of the truck and fruit industries of the South Central States dates from 1872 when the first refrigerator car of strawberries reached Chicago from the lower Mississippi Valley. It had taken years to evolve a type of car now more or less familiar to every one, but at last success had crowned the efforts of the patient and industrious pioneers, and a revolution has followed in the wake of their achievements. It is reported that six refrigerator cars were in operation in 1887, and over 60,000 in 1901, though of course it should not be concluded that all of these were used in the South.

According to the census of 1899, 5,753,191 acres were devoted to vegetable growing in the United States. This constituted 2 per cent. of the acreage devoted to all crops, and while 1.4 per cent. of the improved land was utilized in the growing of vegetables, the returns on the land devoted to vegetables amounted to $42.09 per acre, and for all crops to $10.04. While all our farm crops were represented by $2,910,138,663, vegetables were worth $242,170,-148, or 8.3 per cent. of the total value of all crops. The South produced $80,009,255 worth of vegetables in 1899. Virginia grew $9,083,274 worth of vegetables in that year; Texas, $7,677,249 and Missouri, $8,725,502. In Maryland 6.6 per cent., and in Florida 5 per cent. of the improved land was devoted to the production of vegetables, while the value of vegetables in Maryland represented 18.3 per cent.,

and in Florida 23.7 per cent. of the total crops grown. The production of Irish potatoes increased four-fold in the South in the past decade, the South Atlantic states producing 11,736,138 bushels worth $6,469,661, and the South Central states, 17,706,025 bushels worth $7,833,340. In 1899, 1,001,877 farmers reported the growth of sweet potatoes in the United States, of which 888,349 resided in the South. The crop was worth about $19,876,200, or one-fifth of the total value of the Irish potato crop of the United States. The South's share of this wealth was $17,268,336. The value of the sweet potato crop per acre was $36.98, or considerably more than that of Irish potatoes. It is worthy of note that this crop is chiefly raised in the South, Georgia devoting 70,620 acres to it and North Carolina, 68,730 acres. The counties devoting the largest acreage to sweet potatoes were Accomac county, Virginia, 12,495 acres with a yield of 2,009,814 bushels; Northampton, Virginia, 3,509 acres, yielding 1,054,803 bushels; and Johnson county, North Carolina, 2,725 acres, yielding 273,759 bushels.

Onions have not been extensively grown in the South as yet. In 1899 the South Atlantic states reported 600,905 bushels worth $448,752, and the South Central states, 1,256,805 bushels worth $926,316. The growth of Bermuda onions in Texas is of rather recent origin, but it has assumed very substantial proportions in some sections of that state, and threatens to a considerable extent the supremacy of the Bermuda Islands in this industry. This means that some millions of dollars annually sent to the Bermuda Islands will now pass into the hands of Texas farmers, and thus further tend to enrich the South.

Vegetables were cultivated for market on 170,869 farms in the South Atlantic states in 1899, the value

of the crop being $13,377,448. In the South Central states miscellaneous vegetables were grown on 184,530 farms, the value of the crop being $11,049,536. Vegetables were grown in excess of home needs on 46,776 farms in North Carolina, 39,471 farms in Texas, 36,457 farms in Virginia, 35,003 farms in Georgia, 33,584 farms in Tennessee, and 31,889 farms in Missouri. The largest acreage was in Maryland, with Virginia, Texas, and Missouri following in the order named. The value of the crop in Maryland was $3,552,298; in Virginia, $2,968,530; and in Missouri, $2,287,669. Baltimore county, Maryland, devoted 15,725 acres to vegetables with a value of $918,535; Norfolk, Virginia, 6,667 acres with a value of $705,059.

In Georgia and Florida the watermelon interest is becoming a great industry, thousands of cars being shipped from these two states annually. The relation of vegetable farming to the fertilizer business is shown by the fact that $63.00 was spent per farm for commercial plant food in the South Atlantic division.

The fundamental relation of truck and vegetable crops to the economic development of the South is shown by the fact that in 1899 the value of these crops in the South Atlantic states aggregated $36,409,541, and in the South Central states, $43,599,714. It appears from these figures that the production of truck and vegetables is a much more important industry, comparatively speaking, in the South Central than in the South Atlantic states.

The canning industry has developed with marvelous rapidity in the South since 1865. In 1880 pickles and preserves were canned to the value of $2,407,342, and in 1900 to the value of $21,507,046. The pickles, fruits and vegetables canned in 1900 were worth $78,175,359. This will give some

idea of the phenomenal growth of this industry throughout the country. It must be said, however, that the canning industry is still in its infancy so far as the South is concerned. Maryland and Virginia, however, are large packers of tomatoes; Maryland also packs much corn, but in Virginia the industry is still young. The canning of fruits is also a comparatively new industry, though commendable progress is now being made in this direction. Peaches, for instance, were quite extensively canned in 1908 in the South, and the industry may be expected to grow as population and business increase. Every facility is found in the South for the development of the canning business, and it is believed that this industry will grow rapidly within the next few years.

The fruit industries in the South are now of great and growing importance. Apples are produced largely in Virginia, western North Carolina, North Georgia, and in Missouri, Tennessee, and Kentucky. Peaches are grown to more or less extent in all the states, but the crop is of special importance in Georgia where as high as 7,000 cars have been shipped in one season. The crop in 1909, an off year, was between 2,000 and 3,000 cars. Strawberries and other small fruits are largely grown in Florida, Louisiana, Alabama, Mississippi and Tennessee. The orange crop is one of the most important industries of Florida. A variety of subtropical fruits are also cultivated in Florida, and are of great commercial importance to that state. The total value of the fruit produced in the South Atlantic states in 1899 was $12,998,996; in the South Central states, $15,010,946. Virginia raised 9,835,982 bushels of apples worth $1,444,557; Missouri, 6,496,436 bushels worth $2,201,734. The cultivation of nuts, especially pecans, is going forward rapidly in Texas, Louisi-

ana, Mississippi, and Georgia where there are now extensive orchards coming into bearing. This is a most promising industry, and is greatly enhancing the value of land in many sections.

Grapes, plums, pears, and other fruits are also extensively grown, but it would be tedious to attempt their enumeration, or to determine without entering too much into detail their influence on the economic development of the Southern states as a whole, but it is needless to say that these industries, now established on a firm and substantial basis and already representing an annual revenue of many millions of dollars, will make greater progress in the future than has been the case in the past because of the rapid increase in population and the establishment of a variety of manufacturing enterprises.

The nursery industry in the South is of recent origin, and though it has now assumed very considerable proportions, the development has chiefly taken place in the past thirty years. In America nurseries are for the most part planted in rows under field conditions, sufficient space being given to permit of the symmetrical development of the individual tree. The management differs materially in this respect from the European practice where crowding is common and the training of trees into fanciful shapes indulged in.

While fruit trees have been extensively grown in the South the production of ornamentals is of recent origin, but the rapid development of parks in our towns and cities and the greater degree of attention now being given to the beautification of home grounds has caused a demand for rare trees and shrubs, and this feature of the industry is now developing rapidly. State inspection is generally enforced throughout the South, which insures the patrons of nurseries receiving trees free from insects

or fungous diseases, while climatic conditions are peculiarly favorable to the growth of trees of superior quality.

In 1899 there were 158 nurseries in the South Atlantic states. The value of their output was $805,490. In the South Central states there were 403 establishments; the value of their output amounted to $1,711,609. In the South Atlantic states the industry reached its largest development in Virginia, Georgia, and Florida; in the South Central states, in Missouri, Texas, Tennessee, and Arkansas.

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THE ANIMAL INDUSTRY OF THE SOUTH.

AT the close of the Civil War the animal industry of the South was, with few exceptions, in a state of extreme inactivity. The needs and ravages of war had removed thousands of her horses, and sheep, hogs, and cattle had been consumed in large numbers by foragers. In Virginia and Kentucky the blood of good horses had been kept to a considerable extent in spite of raids and counter raids, and in Texas, beyond the zone of the most active military operations, cattle ranching was in full swing.

The most immediate recuperation from the effects of the war on the animal industry was found in the border states. An article on the status of Virginia agriculture, in the report of the U. S. Commissioner of Agriculture for 1870, shows that, although Virginia farms had not yet wholly recovered from the effects of the war, considerable improvement of the livestock of the state, including poultry, was in progress. The beef cattle were then, as now, mainly Shorthorns, and some Devons were found; Ayrshire and Jersey cattle were being used to improve the dairy stock, and Chester White, Berkshire, Jersey Red (now Duroc Jersey), Essex, and Irish Grazier (now Poland China) hogs were found. The improvement was most marked in the western part of the state.

Of the animal industry of the South generally, an article on "Southern Agriculture" in the report of the U. S. Commissioner of Agriculture for 1867 says: "Little has been done in this direction; the predatory character of a portion of the population has, in many places, reduced the stock of hogs and sheep to a minimum. * * * Of the entire stock of domestic animals, in certain sections of the cotton states, less than one pound in every hundred is produced by feed furnished by the care of man." In this article containing sixteen octavo pages, only eighteen lines were devoted to the subject of stock-growing.

From the standpoint of quality in domestic animals, since the war first place must be assigned to Kentucky. The preëminence which she held in Shorthorn cattle-breeding was continued, after the military interruption, and very notable results were accomplished during the seventies and eighties. The development of her horses continued in spite of the war, and to-day sustains the claim of the blue grass counties of the state to first place in this in-

dustry. Virginia ranks second, with Tennessee third.

Horses.—The horse history of Kentucky since the war has been particularly brilliant. The horses now fixed into a distinct breed known as the American saddle horse were just coming into their own when the war closed. Gaines' *Denmark,* known as "The Denmark," the leading son of the original *Denmark,* was foaled in 1851, and was ridden for two years in Morgan's command. Of the 2,981 entries in the first volume of the *American Saddle Horse Register,* 1,653 trace in direct male line to the foundation sire Denmark, and of these, 1,647 trace through Gaines' *Denmark.* The hard military service to which the horse was put weakened him, and he died in 1864. Like other great Kentucky horses, his career as a sire was cut short by the vicissitudes of war. The influence of the Denmarks on the development of the saddle horse has been great, and the original horse is now rated as the foundation sire of the breed. One of the more recent sires, whose descendants are highly valued by saddle horse breeders to-day, was *Harrison Chief,* a Standardbred horse sired by *Clark Chief,* out of *Lute Boyd* by *Joe Downing. Harrison Chief* was foaled in 1872, and died in 1896.

The National Saddle Horse Breeders' Association was organized on April 7, 1891, in Louisville, Kentucky, the name being changed to the American Saddle Horse Breeders' Association, at the meeting held on April 7, 1899. The president since its organization has been General John B. Castleman. The association devotes itself to the advancement of the interests of the breed, publishes the register of pedigrees, and offers prizes for the breed at livestock shows.

Next to Kentucky, Missouri has played the most

prominent part in the development of the American saddle horse. The Missouri horses are generally regarded as somewhat more rugged than those of Kentucky, but do not, as a rule, possess quality and finish in the same degree. Tennessee has also been prominent in this line of industry, the famous Hal family having been developed largely in that state. Texas has also had some very excellent saddle horses. The Hal family is quite as prominent in the history of the Standardbred as in that of the saddle horse.

In the development of the trotting and pacing horse, the record of Kentucky is remarkable. Although the state cannot claim the predominance which she has attained in the breeding of saddle horses,—and though many of the most notable studs of Standardbred horses have been located in other states,—Kentucky has been among the leaders, and for a long period was in a large degree the centre of activity. As is universally recognized, *Hambletonian 10* was the foundation sire of Standardbreds, and the majority of the horses which have made standard records trace directly to him. *Hambletonian 10* was in service in Orange county, New York, and his greatest sons were nearly all foaled in that county. Of the really great sons of this horse, *Electioneer,* who gained fame in the stud of Leland Stanford in California, was the only one which did not spend some portion of his life in the blue grass counties of Kentucky.

George Wilkes, who shares with *Electioneer* the claim to being the greatest son of *Hambletonian 10,* and who appears more often in standard pedigrees than any other horse, was taken to Kentucky in 1873, where he spent most of his days at stud, and where he sired nearly all his most noted sons and daughters.

Alexander's *Abdallah,* who would perhaps have ranked as the greatest of them all, had he had the opportunity, was foaled on Aug. 27, 1852. He was taken to Kentucky in 1859, and became the property of R. A. Alexander of Woodburn in 1862. In February, 1865, he was captured by guerillas, was recaptured, and was ridden so hard that he died of pneumonia brought on by exhaustion and exposure,—thus meeting a similar fate to Gaines' *Denmark.* Alexander's *Abdallah* was the sire of *Goldsmith Maid, Almont, Belmont,* and *Major Edsall,* the sire of *Robert McGregor,* at one time the champion trotter stallion. In addition to the brilliant record of this horse as a sire of speed, he is especially noteworthy to-day, when a large amount of attention is being paid to the improvement of the Standardbred horse in conformation and quality, in that he was himself a horse of excellent individuality, which in turn was inherited by his descendants. A somewhat exhaustive study of the pedigrees of horses of standard breeding which win honors in the show ring, has shown that this horse appears with great frequency.

Harold, the sire of *Maud S.,* was purchased by Woodburn Farm as a yearling in 1865. *Happy Medium,* the sire of *Nancy Hanks,* went to Kentucky in 1879. *Dictator* spent two seasons in this state in the seventies, and went there permanently in 1883. *Aberdeen* was taken to Kentucky in 1881; *Jay Gould* spent his declining years there; *Egbert* spent most of his stud career there; and *Governor Sprague* died in Lexington in 1883.

In the development of the Thoroughbred horse since the war, Kentucky likewise holds the first place, with Virginia, Tennessee, and Missouri following. Virginia has some very notable studs of Hackney horses, and all the states named have been prominent in mule breeding and remain so.

Virginia has been particularly prominent in breeding horses for hunters. These horses usually carry considerable amounts of Thoroughbred blood, and it may be said that, of all breeds of light horses, the Virginian prefers the Thoroughbred to any other.

The trend of horse breeding in the South at the present time is decidedly upward. Anti-betting legislation has had considerable effect on the Thoroughbred, and is bringing about a more healthy tone and causing leading breeders to pay more attention to the value of the Thoroughbred for the improvement of native stock, as well as for producing a racing machine. The great uncertainty of breeding a Standardbred which will prove fast enough to be really profitable on the race track, is causing breeders to pay careful attention to the necessity for quality and good conformation. Saddle horse breeders have found the anomalous fact that their breed is valuable for the production of carriage horses also, and some of the best horses of this type which have ever come out of Kentucky have been registered in the American Saddle Horse Register. In the states farther south, such as North and South Carolina, results are shown to prove that good horses and mules can be bred there. The possibilities of certain sections of the South for horse and mule production are gradually being realized. In the Piedmont sections of Maryland and Virginia (and, to a certain extent also in North Carolina) the breeding of draft horses is being carried on systematically and successfully.

Cattle.—The most important features of the cattle industry of the South since the war have been the remarkable development of Shorthorn breeding in Kentucky during the first decade, the improvement of the range cattle of Texas by the use

first of Shorthorn and later of Hereford bulls, and the discovery of the cattle tick as the carrier of the organism of what is usually called Texas fever of cattle.

Before the war, Kentucky had become famous as a breeding ground of Shorthorn cattle, but an even higher rank was reached later. The famous Woodburn estate, which made such an impression on horse breeding during the last half of the Nineteenth century, began breeding Shorthorns in the fifties and was for many years a dominating factor. The Renick family is still intimately connected with Shorthorn breeding, and is especially known by the development of the Rose of Sharon family by Abram Renick, who is ranked by authorities "as one of the greatest constructive breeders ever identified with Shorthorn breeding in America." In 1869 every animal in Renick's herd, including the females back to the fourth generation, was bred by him. Renick's course was one which has always been regarded as dangerous, but he obtained results in uniformity and fixity of type which justified him. Inbreeding is a practice which, from all that we know of heredity, is a dangerous one in inexperienced and unskillful hands; but, used by a master such as Renick, it is the surest and most expeditious means to fix type. Indeed, one may go even further and say that no really permanent improvement in live-stock breeding, no really prepotent fixing of type, has ever been or, in fact, ever will be accomplished without resorting to inbreeding. The extent to which it may be practiced depends primarily on the ability of the breeder, and next on the freedom of his original stock from inherent, constitutional, and hereditary defects. That Renick could do this with such fortunate results to a greater extent perhaps than any other Shorthorn breeder in America, makes his work

worthy of the most careful study by students of heredity.

Another family of much prominence in Kentucky Shorthorn circles was the Van Meter family, which developed the Young Mary and Young Phyllis families of Shorthorns. The Warfield family, too, must be mentioned as being among the leaders.

In recent years the breeding of Shorthorns has failed to have the prominence in Kentucky that it formerly had. One of the most recent famous Shorthorn men was T. S. Moberly of Richmond, who brought out the great bull *Young Abbottsburn,* and his herd was dispersed in 1895 after his untimely death. The Woodburn herd was dispersed in 1891, and, until 1907 when Elmendorf Farm bought *Whitehall Marshall,* it appeared that the principal breeding of Shorthorns had been carried elsewhere.

Some excellent herds of Hereford cattle are located in Kentucky, West Virginia, and Virginia, and throughout the two states last named as well as in North Carolina the grazing of cattle is an important feature of agriculture. In Southwestern Virginia and Western North Carolina, until recently, the fattening of cattle on grass for the export trade was a profitable business. The great increase in prices, however, now makes it generally more profitable to sell them on the American markets.

The improvement of the Texas cattle after the war is exceedingly interesting. The character of the original native stock is well-known. The semi-wild Texas steer, with his long horns, long legs, and light body, was a familiar picture in the school-books of twenty years ago. These cattle began to be improved in the seventies when the Shorthorn industry dominated the cattle world of the North, and Shorthorn bulls formed the basis for the improve-

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STOCK YARDS, KANSAS CITY, MISSOURI.

ment. When, somewhat later, Hereford cattle were imported from England in large numbers, their value for the range was soon discovered, and they eventually became the principal breed used for range improvement. Many large ranchmen established herds of purebred Shorthorns and Herefords on their property to supply bulls of the highest quality for use on the range. The output of the Texas ranges is now of high grade, and the long horn steer is a curiosity even in Texas.

The discovery of the cattle tick (*Margorophus annulatus*), as the carrier of the organism of Texas fever in cattle, by Smith and Kilbourne of the United States Bureau of Animal Industry in 1890, is one of the most important events in the history of the animal industry of the South since the war. This was the first discovery of an insect acting as the carrier of disease, and in view of the fact that it led to the discovery of the part which certain mosquitoes play in the spread of malaria and yellow fever, it ranked as one of the most important discoveries of modern times. Ever since the development of the cattle industry in Texas and the business of shipping Southern cattle north began, it was known that, in some mysterious way, such cattle were dangerous to northern cattle, although after a time they lost this dangerous characteristic. The same experience was had when Northern cattle were taken south, large numbers dying when so transported. The interest of the Federal government in the matter began in 1868, when enormous losses occurred among northern cattle after the shipment of Texas cattle into Illinois and Indiana. The first result of the government's work was the quarantine against cattle in Southern states, on account of the presence of the disease. This quarantine prohibited ship-

ment from such localities, except for immediate slaughter, but permitted shipment during the period of the year when experience had shown that the cattle were harmless. This was in winter time, usually in December and January. The quarantine area now includes parts of Virginia, North and South Carolinas, Georgia, Mississippi, Tennessee, Kentucky, Oklahoma, Texas, Arkansas, California, and all of Florida, Alabama, and Louisiana.

The effect of this quarantine has been a marked discrimination against cattle sold in the quarantine yards at the northern packing centres. For cattle of equal grade and quality to those marketed above the quarantine line, there is an average difference of price of from 25 to 50 cents per 100 pounds against the Southern animal. But this is only part of the actual loss occasioned by the presence of these pests on Southern cattle. Doctor Mohler estimates the loss from this source alone at $1,057,500 annually, and from the consequent depreciation of value of all cattle below the line a loss in assets of $23,250,000 in beef cattle alone is estimated. Considering the decreased milk flow among dairy stock, the death of non-immune cattle on Southern tick-free pastures (which are as susceptible as Northern cattle), the loss to breeders of purebred cattle in the South from their inability to compete against Northern animals at live-stock shows, the quarantine expenses of the government, and the increased freight rates on account of necessary quarantine regulations, Doctor Mohler computes the annual loss to the cattle interests of the South to be $40,000,000, in addition to the direct depreciation in assets of $32,250,000 above mentioned. These facts have led Congress to place at the disposal of the Bureau of Animal Industry funds to be used in the eradication of the tick. The habits of the tick make possible its eradication by

simple methods of pasture rotation, when carefully managed. The female tick always drops off the animal to lay eggs, and the young ticks hatched from these eggs crawl up grass and weeds, attach themselves to passing cattle, and they are the actual carriers of the Texas fever organism. If cattle are removed to tick free pastures after the ticks have fallen off them, and no more ticks get on them, they can be safely brought into contact with non-immune cattle. This system will be satisfactory, provided there is no doubt that all ticks have left the cattle before they are removed to the clean pastures. Unfortunately, the rule does not operate with absolute accuracy, and the pasture rotation plan is not so complete a solution as had at first been hoped. Dips are now used, however, which kill the ticks without injury to the cattle, and, by combining a system of dipping with pasture rotation, the solution of the problem becomes simply a matter of time. The government's work began in the summer of 1906. During the fiscal year 1909, 13,544 square miles of territory were released from quarantine as a result of this work, the total area released since its inauguration being 71,336 square miles. The results are apparent in the increased value of the cattle in the released area. In one locality this was from $3 to $15 per head, and one Southern agricultural official is quoted as saying that calves in the recently freed area are worth just twice as much as those in the infected districts. The most encouraging sign of progress is the increased interest shown in herd improvement in the freed areas. It is now possible to bring in non-immune cattle with perfect safety. The eradication of the cattle tick is the most important question connected with the animal industry of the South at the present time. In view of the diminishing range area in the West, the great possi-

bilities of the South in beef production, the large areas in the South suited to the raising of beef cattle but not yet so utilized, and the increase of our home consumption of beef, the problem is one of supreme importance to the entire country.

Sheep and Goats.—The sheep industry of the South has languished since the war. Outside of certain portions of Maryland, Virginia, West Virginia, Kentucky, Missouri, Tennessee, and Texas, the industry is not so important as formerly nor so important as conditions warrant, if the ever-present dog were eliminated, and losses by internal parasites be successfully avoided. In Texas the sheep are largely raised under range conditions. It may be said, however, that at the present time the sheep business is being inaugurated by farmers in Florida and Alabama with profit, and it promises to become an important one.

Goat raising on a systematic scale is confined principally to Texas. In that state some of the best flocks of Angora goats in the country are found. In the hill districts of Alabama and adjacent states considerable numbers of common goats are found. They range without much care and the kids are used for meat, being both wholesome and palatable. The goats in Alabama are very interesting on account of their uniformity, which has come about, not by artificial selection by man, but through natural selection. The survival of the fittest in this case has resulted in fixing breeding type with considerable uniformity.

Hogs.—The hog industry of the South is the one animal industry which has progressed generally in the South. True, the Southern states do not occupy the position they did before the war, but there are still several of the states whose hogs number more than 1,000,000 head, with Texas and Missouri among

the leaders. The raising and feeding of hogs in the South was long since shown to be decidedly profitable. There are no diseases peculiar to the South alone which affect hogs. In the neighborhood of Uniontown, Alabama, the raising and feeding of hogs for market has assumed important proportions. In purebred herds, the states of Maryland, Virginia, West Virginia, Kentucky, Tennessee, Alabama, and Texas are excellently supplied, while Missouri takes very high rank in this field as in other lines of livestock breeding.

Dairying, Poultry, and Bees.—Before the war, the dairy industry of the South with natural exceptions in Maryland, Virginia, Kentucky, and Missouri, was exclusively a home industry. After the war, creameries and cheese factories were slowly established, and in Maryland and Missouri the dairy industry rapidly assumed a position of importance. With the development of refrigeration and improved methods—notably the inventions of the Babcock test and of the cream separator—the entire dairy industry of the United States was revolutionized. The South has shared in this, but not to the fullest extent which her climatic conditions and the forage capabilities of her soil make possible. The Census reports show estimates for the amount of milk and butter produced on farms, but the figures are admittedly inaccurate, and they will not be reproduced here. The reports of the number of creameries, cheese, and condensed milk factories are accurate, however, and give a definite idea of the development of the dairy industry of the South. The table below shows the number reported by the Census for 1870, 1880, 1890, and 1900, and the number reported by the Dairy Division of the Agricultural Department in 1909.

CREAMERIES, AND CHEESE AND CONDENSED MILK FACTORIES IN SOUTHERN STATES.

(According to the United States Census.)

State.	Number reported in 1870.	1880.	1890.	1900.	1909b. Creameries.	Cheese Factories.	Cond. Milk Factories.
Maryland.....	..	14	24	84	50	..	1
Virginia.....	2a	4	12	10	5	2	..
West Virginia..	..	7	3	4	3	2	..
North Carolina.	3a	2	0	..	2	..	..
South Carolina.	..	..	..	..	2	2	..
Georgia.....	..	..	..	4	6	..	..
Florida.....	..	..	..	..	..	..	..
Kentucky.....	4	8	15	9	30	..	..
Tennessee.....	..	2	4	12	4	..	..
Alabama.....	..	..	..	4	..	..	..
Mississippi.....	..	..	..	..	1	..	..
Louisiana.....	..	..	..	..	..	..	..
Texas.....	..	..	3	12	36	..	..
Oklahoma.....	..	..	..	5	29	..	..
Arkansas.....	..	..	..	8	9	..	..
Missouri.....	1	30	61	79	51	7	4

a. Cheese factories only.
b. Reported by Dairy Division, B. A. I., U. S. Department of Agriculture.

The table discloses a tendency to increase the number of creameries in the South, except in the neighborhood of Washington, where the production of market milk engages the attention of dairymen, almost to the exclusion of buttermaking, and in Missouri, where the centralization of the creamery business has driven many small establishments from the field. The decrease in Tennessee is probably due to local conditions.

The work of the Dairy Division of the United States Department of Agriculture is having a marked effect on the development of dairying in those sections of the South suited for the industry. Large numbers of farmers have been started right by its advice, a great deal of valuable information has been given on the construction of barns and silos, and the milk supply of many Southern cities wonderfully improved under its supervision. The

work of the Division has been especially effective, because it does not attempt to encourage dairying in sections where conditions are not distinctly favorable.

The poultry industry is especially suitable for Southern farms. The mild climate and abundant forage make possible very economical production. According to the census, the production of eggs is increasing rapidly in the Southern states, but due allowance must be made for the fact that the accuracy of enumeration is also increasing. However, there is undoubtedly an increasing interest in poultry in the South. In proportion to the total animal products reported, poultry and eggs assume a value of much importance. In 1899 the poultry and eggs of the United States represented 16.3 per cent. of all animal products reported from farms—including wool, mohair and goat hair, milk, butter, cheese, eggs, poultry, honey, wax, animals sold and animals slaughtered. In the South the average for the country was exceeded in every case except in Texas, Oklahoma, and Indian Territory. In Maryland, South Carolina, and Louisiana, the proportion exceeded 25 per cent.; in Missouri it was 18.2 per cent.; and in Kentucky it was 19 per cent.; and in West Virginia 19.5 per cent. In all other states the proportion was more than 20 but less than 25 per cent. The principal supply of turkeys in the Northern markets now comes from Texas.

Apiculture is an important industry in the South, and there are bee-keepers in certain counties in Texas whose annual production of honey exceeds a ton. According to the reports of the Twelfth Census, the five states of the entire country reporting the largest numbers of farms where bees were kept were, Texas, Kentucky, Missouri, North Carolina, and Tennessee—in the order named. The five states

leading as to number of swarms, or colonies, were Texas, North Carolina, Tennessee, Alabama, and Missouri—in the order named. Texas led in the total output of honey with 4,780,204 pounds, and Missouri was fourth. Alabama led in the production of wax, with Texas second, and North Carolina third.

It is almost impossible to learn satisfactorily the extent of the industry from a statistical standpoint before 1900. Some attempts had previously been made to estimate the annual honey production, but they are not regarded as accurate by authorities on American apiculture. Indeed, the figures of the Twelfth Census are questioned as being entirely too low. However, they are probably correct from a relative standpoint, the rank of the different states in this industry probably being as given.

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SOUTHERN FOREST PRODUCTS, AND FOREST DESTRUCTION AND CONSERVATION SINCE 1865.

Since 1865 the development of the Southern forest resources has progressed so rapidly that within two decades the Southern states took the lead in lumber production, and their principal timber, yellow pine, now furnishes nearly one-third of the total lumber cut of the United States (32.9 per cent. in 1908). The chief advance has been recent. Thus, in 1900 no Southern state ranked among the eight states which led in volume of lumber cut, but by 1904 Louisiana ranked fourth, Arkansas seventh, and Mississippi eighth. The next year Louisiana stood third and Arkansas sixth, with Mississippi holding its own. In 1906 Louisiana advanced to the second place, Mississippi to the fifth, and Arkansas to the sixth, while Texas took the eighth place; and in 1907 Louisiana, Texas, and Mississippi ranked, respectively, second, third, and fourth, and Arkansas retained the sixth place. The leading three Southern states had now outstripped Wisconsin, Michigan, Minnesota, Pennsylvania, Ohio and Indiana. The percentage of the total number cut furnished by the Southern states in 1907 was 44.3 per cent.

Still more remarkable appears the growth of the lumber industry in the South during the period, when 1870 is compared with 1907. In these thirty-seven years the value of the products of the lumber industry increased from $21,260,975 to $281,412,340, a gain of considerably more than 1,200 per cent.

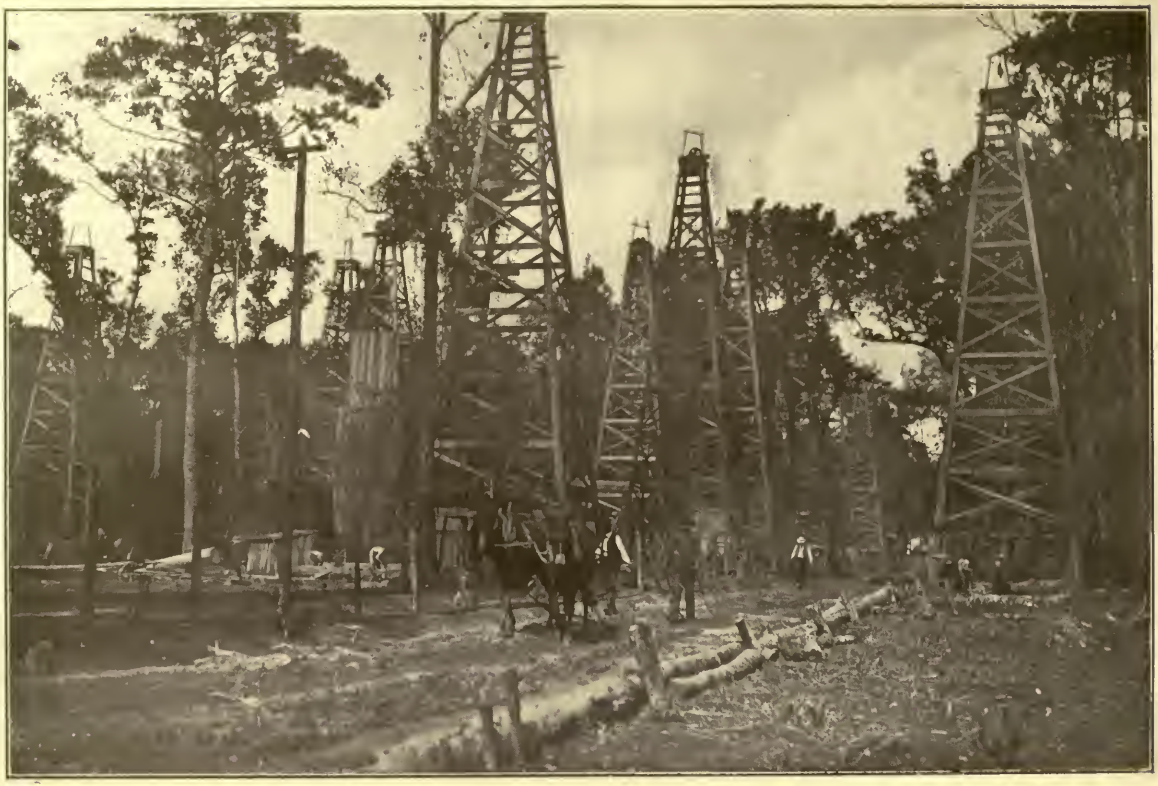
The volume of business in lesser forest products in the Southern states in 1908 was also very large. Those states produced 85 per cent. of all tight cooperage staves, valued at $8,507,900, and slack coop-

erage staves and heading valued at approximately $4,700,000. Florida, Georgia and North Carolina produced over 42 per cent. of the softwood distillates, valued at $103,025. Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina and Texas yielded 36,589,000 gallons of spirits of turpentine and 4,288,283 barrels of rosin, valued together at $31,895,950. Thus, adding the estimated value of the great quantities of wood used for fuel and fencing—about $75,000,000—the total annual value of the forest products of the Southern states is more than $400,000,000.

The story of the growth of forest industries in the South is full of interest and instruction. About 1890 the severe depletion of the Northern forests in New England, New York, Pennsylvania and the Lake states compelled lumbermen to seek new fields. These they found in the splendid stores of timber in the pineries and hardwood uplands of the South. They set to work upon them vigorously, and the leading position in the lumber industry, until then held by the North, was quickly relinquished to the Southern states.

Several other causes contributed to the same result. The general economic and industrial awakening of the South during the last quarter of the Nineteenth century created new demands for timber and other forest products, as well as for the agricultural soil of the bottomlands covered with forests. Meantime, the growth of the entire country, together with the rapid extension of railroads, which both prepared for and followed that growth, made ever increasing drains upon the forest.

As a result, the Southern states were soon doing the largest business in forest products which any single section of the country had ever seen, and the whole economic and industrial activity of the South



CONVERTING A PINE FOREST INTO AN OIL FIELD.

was stimulated both directly and indirectly. The pineries were attacked and exploited with unprecedented vigor. Southern yellow pine became the staple building and construction material over a large part of the country. The invention and improvement of logging machinery and the improved transportation facilities increased both the scale of lumbering operations and the profits of the business, while the prevailing low stumpage prices offered strong inducements to investors on the lookout for opportunities for a rapid turn-over of capital. The impetus thus imparted to the development of the whole South was remarkable.

On the other hand, the effect upon the forests has been to tax them to the utmost. Had it not been for their inaccessibility, which kept all but their choicest timbers off the market, and for their location on steep land, which discouraged extensive clearing and commonly resulted in the early exhaustion, abandonment and reversion to forest of the hillside farms, the hardwood uplands would already have been stripped. As it is, these forests are now yielding the last of their virgin timber; their second growth must suffice for future demands. The pineries are producing heavily, but they can not long withstand the methods by which they are now exploited, methods which give no heed to the future of the forest or of the communities dependent upon lumbering and other forest industries.

The present forest situation of the South is briefly as follows:

1. The serious depletion of the Northern forests, in New England, New York, Pennsylvania and the Lake states, has given to the South a dominant position in the lumber territory. The Southern yellow pines yield most of the building and construction material used over a large part of the country;

the Southern hardwood forests, together with those of the States on the western slopes of the Appalachians, will have to furnish at least half of the total hardwood cut of the country.

2. Nothing but conservative management—forestry—will enable the South to retain its hold upon the immense economic and industrial asset thus placed in its grasp. Down to the present time, however, conservative management within the region has been confined to a few scattered examples, most of which are the outgrowth of coöperation between timberland owners and the Forest Service. These examples possess great educational value as object lessons, but when the whole field for forestry in the South is considered, they are altogether insignificant. Prevailing methods of logging, both in the pineries and among the hardwoods, are exceedingly wasteful. Exceptions to this rule are found in the logging of cypress, in which utilization is satisfactorily close, and in the logging of chestnut for tanning extract, where very little waste occurs. Yellow pine logging, the premature working and destructive boxing of longleaf pine for turpentine, and the system of culling hardwoods, which steadily lowers the quality of the hardwood forests, together produce more waste, direct and indirect, than attends or follows lumbering in any other region of the country. Great savings have been effected by the "cup and gutter" and "cup and apron" systems of turpentining, which are constantly coming into wider use.

3. The chief obstacle to forestry in the South is the destruction caused by forest fires. Fires run riot in the pineries, lay waste the cut-over lands, and constantly endanger, often seriously damage, the virgin timber. They set a premium upon premature, hasty, and destructive logging, and effectually

discourage the holding of forest land for a continuous succession of crops, even for a single additional crop. As long as they go unchecked they will furnish lumbermen and forest owners with an unanswerable argument in support of their present destructive methods. Unless fires are checked, forestry in the Southern pineries will never appeal to men of good business sense.

4. On the other hand, the excellent returns, the stability of business, which forestry alone can guarantee to the industries dependent upon the forests, thrust the need of fire protection forcibly upon the attention both of the individual forest owners and of the states. Forest owners can not afford to abandon the permanent business which they can count on if their holdings are protected from fire; and the states as a whole can not afford to lose the lumbermen and the wealth which their industry contributes to the economic and industrial growth of the South. Thus the forest wealth of the South, and all that depends upon its permanence, make it imperatively necessary to protect the Southern forests from fire.

Experience in dealing with the forest fire problem in many parts of the country has shown that the only certain method of controlling fires is to prevent them; that a thorough system of patrol is by far the most effective, indeed the only really effective method of prevention; that adequate patrol can be secured in the South at a cost of not more than two cents an acre per annum; and that the most successful as well as the most economical patrol system hitherto tried in any part of the country is secured by coöperation among the timberland owners themselves. In Oregon, Washington and Idaho highly successful fire-protective associations have been formed among timberland owners, and

strengthened by coöperation with the state and federal forest officers. Similar associations might readily be formed throughout the Southern pineries. They would mean the practical suppression of fire, and would thus open the way for the practice of forestry and the permanent devotion of forest soils to timber production. Should the forest owners themselves fail to organize satisfactory fire-protective systems, it may be the duty, as it is unquestionably the right, of the states, in the interest of all their citizens, to develop a complete system of fire patrol and to tax the owners pro rata on an acreage basis for the protection furnished.

5. The upland forests of the South should be conserved not only in order to produce permanent supplies of timber, but also in order to protect the soil and control the streams. They furnish excellent examples of forests which are at once productive and protective. Hitherto, their value for both purposes has been seriously impaired by overcutting and by clearing for agriculture. As transportation facilities increase, conservative lumbering will become more and more profitable in these forests, where the fire risk is very much less than it is in the pineries. Forestry should appeal strongly to owners of Appalachian hardwood timber. Yet these forests are steadily deteriorating as sources of timber. Again, clearing has removed the forest altogether from many slopes on which agriculture can live but a few years, and on which the forests should have been maintained to protect the soil and retard the run-off. These facts point clearly in one direction—to the need of State or Federal action to guarantee the permanent retention of forests on the higher uplands of the South. The destructive effects of clearing and impairing the forest cover in the Southern Appalachians are not confined to the limits of the

forests; they are carried into the lowlands. The most fertile soils of the South have already been seriously injured by washing and flooding directly due to the clearing of the forest cover at the heads of the streams. In the second place, the floods from the denuded hillsides, by filling the river beds with silt, threatened to destroy the usefulness of many navigable streams. Finally, the full development of the Southern power streams can never be accomplished, unless steps are promptly taken to keep intact the mountain forests, which form the keystone of any project to store the waters for power purposes by the use of reservoirs. The South must conserve its protective forests in order to reap the full benefits which should rightly come to it through the extension of water transportation and the full use of its great water powers.

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THE CONDITION OF FISHERIES IN THE SOUTH.

THE enlarged shipping facilities and the extended use of ice have had great influence in developing the fisheries of the South since 1865. Instead of depending for a market on local consumption, the bulk of the catch is expressed to the interior and to distant markets. The resources have responded so readily to this demand that at present they give employment to more than one-half of the fishermen in America, exclusive of Alaska, and they yield one third in value of the products.

The following summary shows, according to the preliminary report of the census of 1908, the extent of the fisheries of each state grouped in the order of its rank:

STATEMENT SHOWING THE EXTENT OF THE FISHERIES OF EACH STATE GROUPED ACCORDING TO ITS RANK, ACCORDING TO THE CENSUS OF 1908.

Rank.	States.	Persons employed.	States.	Capital invested.	States.	Value of Products.
1.	Va.	20,066	Va.	$2,983,610	Va.	$4,715,740
2.	Md.	18,392	Md.	2,295,310	Md.	3,405,670
3.	N. C.	9,681	Fla.	2,215,520	Fla.	3,388,690
4.	Fla.	9,212	N. C.	1,270,260	N. C.	1,776,020
5.	La.	5,795	La.	929,070	La.	1,568,800
6.	S. C.	2,559	Miss.	521,980	Ga.	700,960
7.	Ga.	2,525	Tex.	454,340	Miss.	556,170
8.	Miss.	2,037	Del.	440,470	Del.	541,200
9.	Tex.	1,780	Ga.	408,060	Tex.	445,890
10.	Del.	1,756	Ala.	268,710	Ala.	387,220
11.	Ark.	998	S. C.	113,920	Mo.	293,480
12.	Ala.	972	Mo.	93,410	S. C.	288,330
13.	Mo.	928	Ark.	88,970	Ark.	207,170
14.	Ky.	555	Tenn.	49,920	Tenn.	111,860
15.	Tenn.	427	Ky.	38,570	Ky.	110,300
16.	W. Va.	20	W. Va.	820	W. Va.	2,680
	Totals.	77,703	.....	$12,172,940	.....	$18,500,180

From this summary it appears that Virginia, Maryland, Florida, North Carolina and Louisiana, are far in the lead, giving employment to 82 per cent. of the fishermen in the South and yielding 80 per cent. in value of the products. Indeed the fisheries of the remaining eleven states combined are of less extent than those of Virginia alone.

As regards number of fishermen, Virginia and Maryland exceed all other states in the Union, and Florida and North Carolina are surpassed only by Massachusetts with 11,577. But as regards the value of the yield, the rank of the Northern states is relatively greater, owing to their important vessel fisheries. Massachusetts ranks first with $7,095,-230 worth of products. Virginia second with $4,-715,740, New York third with $4,593,700, Washington fourth with $3,513,240, and Maryland, Maine,

New Jersey, Connecticut, California, North Carolina, Rhode Island and Louisiana follow in the order stated.

The principal fishery product of the South is the oyster, which occurs in all the coastal waters from Delaware to Texas, and is especially abundant in the Chesapeake region. The yield in 1908 exceeded 22,000,000 bushels, for which the fishermen received $7,150,000. This quantity was two-thirds of the total product in America. Maryland ranked first in output, with 6,232,000 bushels, Virginia second with 5,075,000, and Louisiana third with 3,624,000 bushels. Except in Virginia and Delaware, oyster culture on private areas has made little progress in the South, and the yield is obtained almost wholly from the public or natural reefs.

From a monetary point of view, shad is the most important species of fish, the 1908 yield approximating 21,500,000 pounds for which the fishermen received $1,750,000, representing 78 per cent. in weight and 82 per cent. in value of the total product in America. This fish occurs in all the estuaries of the Atlantic coast, but principally in Virginia, Maryland, North Carolina and Florida, Virginia alone yielding 34 per cent. of the total.

The catch of mullet was 34,000,000 pounds worth $920,000, exceeding the shad in weight but considerably less in value. This species is most abundant in Florida, where over 70 per cent. of the catch was obtained. North Carolina comes next with 5,070,500 pounds, or 15 per cent. Very large quantities of mullet are salted in these two states.

Another fish of importance is the squeteague or sea trout, of which 21,000,000 pounds worth $805,000 were obtained in 1908. This species occurs in every coastal state, but is taken most abundantly in Florida, North Carolina and Virginia. It is consumed

locally almost entirely, as it is rather soft for long shipment.

Although in value of the catch, the menhaden does not equal any one of the species named, it is taken in a greater abundance than any other fish in America. Indeed the weight of menhaden taken is more than twice as great as that of all other species combined in the Southern states, amounting to 323,000,000 pounds in 1908; of which 190,089,000 were caught by Virginia fishermen, 59,815,000 by Delaware, and 57,412,000 by North Carolina fishermen. This species is not used for food, but is converted into oil and fertilizer, large quantities of the latter being used in cotton growing.

Alewives or river herring are also obtained in very large quantities, amounting to 78,500,000 pounds in 1908, worth $476,200. The yield in Virginia was 37,884,700 pounds; in Maryland 28,804,900, and in North Carolina it was 10,927,000 pounds. Many of these fish were salted.

The red snapper is the only species taken at a considerable distance off shore, a large part of the catch being obtained at a distance of 500 miles or more from the coastal line. The product in 1908 was 13,800,000 pounds worth $636,000. Of this, Florida yielded 7,719,900 pounds, Alabama 2,635,200 and Texas 2,251,600 pounds.

Other important sea fishes with their respective yields in 1908 are: croakers, 7,606,000 pounds, worth $197,170; Spanish mackerel, 3,423,200 pounds, worth $184,650; perch, 3,012,100 pounds, worth $159,210; striped bass, 1,705,700 pounds, worth $155,020; red fish or channel bass, 3,153,000 pounds, worth $129,570; blue fish, 2,465,700 pounds, worth $105,260; sheepshead, 2,281,500 pounds, worth $79,510; sturgeon, 590,900 pounds, worth $89,240; pompano, 525,500 pounds, worth $66,140, and butter fish, 2,178,200

pounds, worth $57,590. In addition to these, many species were taken in smaller quantities.

Among miscellaneous salt water products might be mentioned 622,500 pounds of sponges, worth $544,880, all of which were obtained in Florida; 362,900 bushels of clams, worth $494,820; 50,448,700 pounds of crabs, worth $756,350; 13,282,900 pounds of shrimp, worth $317,400, and 4,706,200 pounds of prawns, worth $104,250.

The principal products in the fresh waters were cat fish, 11,760,600 pounds, worth $464,260; buffalo, 9,108,400 pounds, worth $212,560; black bass, 2,519,600 pounds, worth $169,130; carp, 3,976,700 pounds, worth $129,390; bream or sunfish, 2,264,400 pounds, worth $65,540; crappie, 1,102,700 pounds, worth $54,620, and fresh water drum, 2,611,600 pounds, worth $78,260.

Much attention has been given by the Southern states to the conservation of the fishery resources, especially to those of the fresh waters, and restrictive laws and artificial culture have aided largely in bringing about the present prosperous condition of the industry. However the restrictive regulations are in most of the states far from ideal, and in some of them fish culture does not receive the attention it seems to merit.

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THE OYSTER PRODUCTION OF THE SOUTH.

Following closely upon the establishment of transportation lines between the coast and the interior, methods of preserving, packing and shipping oysters were originated and perfected, and as a result the oyster fishery took and has maintained the position of first importance among all fishery industries not only in the South but in the entire United States as well.

The development of an oyster industry of great commercial importance in the South was at first confined to the states of Maryland and Virginia, the stimulus of the packing industry* not having reached farther south until the period following 1885 when the annual yield of oysters from the Chesapeake gradually declined from about twenty-five million bushels to less than half this amount, compelling the packing houses in Baltimore to establish branch houses in North Carolina and Louisiana in order to supplement their supply. These branch houses took with them modern methods and equipment for handling oysters, and became centres from which local oyster interests were gradually built up throughout all of the tidewater states.

The number of persons employed in the various branches of the industry at present, and since about the year 1885, is not far from 80,000, and probably not less than 250,000 people get a considerable part of their support from it for about eight months each year.

The work of dredging requires considerable capital and is chiefly in the hands of white men, but the majority of tongmen, especially in the states south

* See "Oyster Products in the South," Vol. V, page 273.

of Maryland, are negroes. Women are extensively employed in shucking and packing houses and boys constitute about one-third of the crew on the tonging boats.

The total yield of the oyster beds of the South in 1865 was probably not more than 9,000,000 bushels, this estimate allowing for an average local consumption in each of the states south of Virginia, of 25,000 bushels. The total output for the years 1880, 1890, 1900, 1903, and 1908 has been estimated respectively at about fifteen, eighteen, twenty-one, twenty, and twenty-two million bushels. The yield from the states south of Virginia has steadily increased since 1885 and has about made up for the decline in the output from Maryland and Virginia. The value of the product in 1903 was estimated at $16,152,000.

The natural resources of the South in connection with which this vast oyster industry has been developed, comprise approximately 600,000 acres of natural oyster beds, distributed among the states as follows: Maryland, 200,000 acres; Virginia, 200,000 acres; North Carolina,* 10,000 acres; South Carolina,* 1,500 acres; Florida,* 10,000 acres; Georgia, 1,750 acres; Alabama, 3,105 acres; Louisiana,* 50,000 acres; Mississippi,* 50,000 acres; Texas, 87,680 acres.

It is probable that all of the bottoms which produce oysters naturally have now been discovered and that the limit of their output under present methods of supervision has been about reached.

It is also probable that, in response to recent improvements in methods of growing, packing, and shipping oysters made obligatory under Federal Pure Food laws, the demand for oysters will be greatly increased. The effect upon the already overtaxed natural beds of an increase in the demand for

* Estimated.

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PREPARING OYSTERS FOR SHIPMENT, BILOXI, MISSISSIPPI.

oysters will be to hasten the process by which thousands of acres have been destroyed. To those familiar with the history of the free oyster fisheries of Europe and the North Atlantic states, or who have followed the results of legislation by which Maryland and Virginia have sought to prevent the destruction of the oyster beds, the ultimate fate of public oyster fishery is apparent. By limiting the quantity of oysters which may annually be removed, the process of exhaustion has been delayed but not stopped.

Any substantial increase in the output of oysters from the South must therefore come from grounds which do not now produce oysters naturally but which, by virtue of their condition and surroundings, may be made to produce oysters through private ownership and cultivation.

The truth of this situation has long been apparent to economists and statesmen of the South, and laws have been enacted at some time by each of the Southern states providing for some system of oyster culture upon its unproductive oyster bottoms.

These laws impose numerous restrictions upon planters, however, as to the area which may be owned or leased and as to methods which may be employed in planting, cultivating, gathering, and marketing planted oysters. The effect of these laws, when added to the discouragements and difficulties inherent in oyster planting operations, has been such as to prevent thus far the development of an industry in oyster culture worthy of the name in any of the Southern states unless possibly Virginia and Louisiana be excepted.

The area of bottoms beneath the tide waters of Southern states upon which the natural conditions are such as to make oyster culture possible, has been variously estimated and often greatly exaggerated.

A most conservative estimate is that there are 400,000 acres of such bottoms which, when added to the area of natural oyster reefs and beds, gives an aggregate of 1,000,000 acres of bottoms in the South, the value of which is derived from its actual or potential ability to produce oysters.

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PEARL FISHERIES IN THE SOUTH.

ALTHOUGH many specimens were reported previously, pearl fishing in the Southern states developed as an industry about 1895. It was first prosecuted in Arkansas and Tennessee, and with so much success that nearly every river and creek throughout the South has been examined. Few searches have been entirely unrewarded, yet the finds have been relatively much greater in some waters than in others. The value of the product since 1896 has exceeded half a million dollars annually. Arkansas yielded about $500,000 worth from 1896 to 1899; 10,000 persons finding employment therein when the

SPONGE EXCHANGE ON WHARF, KEY WEST, FLORIDA.

industry was at its height. The principal local centers are Newport, Black Rock, and Bald Knob in Arkansas, and Clinton, Carthage, and Smithville in Tennessee. While many of the pearlers in the large rivers are professional fishermen or rivermen, most of those working the smaller streams have had no previous experience in similar work. A large percentage of the finds are irregular in form, commonly known as slugs; but occasionally very choice gems are obtained, rivalling the finest oriental products. The choicest weigh over one hundred grains and sell readily at retail for more than $10,000 each. The fishery has been prosecuted so vigorously that it appears probable the resources will be very materially impoverished, if not ruined, in a few years unless prompt and decisive protective measures are adopted.

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THE SPONGE FISHERY.

Prior to 1849 the few sponges used in the United States, valued at about $10,000 per annum, were imported from the Mediterranean and, to a limited extent, from the recently discovered beds of the Bahamas.

In 1849 a small cargo of native sponges, tentatively shipped to New York, found a reluctant

market, and their commercial value being appreciated, the merchants of Key West, Florida, began to accept such as were offered to them in exchange for other commodities at a valuation of about ten cents per pound.

At first the product came entirely from the shallow waters near Key West, but with the growth of manufacturing and the recognition of the superiority of the best American sponges for use in the arts, the demand broadened and deeper and more distant waters were exploited. From an occasional occupation for a few, sponging soon developed into the principal means of livelihood of several thousand persons; capital was invested in vessels, boats and the simple appliances employed, and a regular market was established at Key West.

That port long maintained its preëminence both as a market and as a fishing centre, but with the depletion of the beds among the Florida Keys and the development of those in the Gulf of Mexico, the market was gradually shifted to Tarpon Springs, Florida, more conveniently located with respect to the fishing, and since 1902 the sales at Key West have been comparatively insignificant.

Until recently the sponges were taken solely by means of three-tined hooks on long poles, but in 1905 the diving dress was introduced in the fishery and within two years the greater part of the catch was taken by that means. This change in method moved the centre of investment in the fishery from Key West to Tarpon Springs, as the market had moved a few years before. It also caused a radical change in the personnel of the fishery. Prior to 1905 the spongers were Americans and Bahamans in about equal numbers, but the crews of the diving vessels are practically all Greeks, who now outnumber the other two nationalities still engaged in

SPONGE FLEET IN HARBOR, KEY WEST, FLORIDA.

hooking. In the height of the fishing season, Tarpon Springs has a Greek population of about 1,500.

The fishery now yields upwards of $500,000 per annum, but the natural beds are becoming depleted. The United States Bureau of Fisheries has recently developed a system of sponge culture and it is likely that in the near future the supply from this source will largely supplant the natural product.

The following table illustrates the recent statistical history of the fishery:

Items.	1880	1900	1905	1908
Capital invested	.....	$494,866	$459,871	$555,267
Vessels, Hooking	102	156	104	72
" Diving	.....	.....	11	73
Boats, Hooking	.....	228	233	156
" Diving	.....	.....	12	123
Persons employed, Hooking	.....	2,113	1,743	978
" " Diving	.....	.....	166	1,342
Products, Hooking, pounds	207,000	418,125	355,108	233,281
" " value	$200,750	$567,685	$475,165	$181,477
" Diving, pounds	.....	.....	9,994	389,208
" " value	.....	.....	$47,761	$367,399
" Total, pounds	207,000	418,125	365,102	622,489
" " value	$200.750	$567,685	$522,926	$548,876

The exports of domestic sponges in recent years have been as follows:

	1903	1904	1905	1906	1907
Pounds	95,159	64,214	31,700	50,953	136,301
Value	$50,306	$36,646	$18,390	$43,926	$114,354

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GAME AND GAME PROTECTION IN THE SOUTH.

Generally speaking, the decrease of game has been less marked in the South than in the North. Deer are to-day more numerous than is popularly supposed, especially in Louisiana and Florida, where, it is estimated, 5,500 and 2,200, respectively, were killed in 1908. In such states as still permit its sale, venison is worth 10 to 20 cents a pound, wholesale, while choice cuts sometimes bring as much as 75 cents a pound. Wild turkeys have become scarce and sell for 20 to 25 cents a pound. Quail, owing to their fecundity, have held their own remarkably, and are to-day abundant in most sections of the South. Their price ranges from $1.50 to $4.50 a dozen, where they are still sold for the table, and live birds have been shipped North for stocking depleted covers at $10 a dozen. Shipments of live quail are now prohibited in most states, but, in 1906, 60,000 or more quail were exported for this purpose from one locality in the South. Furthermore, in North Carolina, and perhaps to a limited extent elsewhere, farmers have derived much direct pecuniary return from the leasing of shooting privileges to Northern sportsmen. In some cases these rentals pay the farmers' annual taxes, and in a few yield an even larger return. Waterfowl, though

steadily decreasing, are yet numerous. In the markets the commoner ducks are now sold for from 50 cents to $2 a pair, while the rarer sorts bring from $1.50 to $3 a pair.

The period from 1865 to 1910 stands out in strong contrast with the period before the war. During the Reconstruction days comparatively little attention was paid to game legislation, and in the following decade few important laws were passed. From 1880 to 1900 interest in game protection increased at a rapid rate, but it is only during the last ten years that most of the real advance has been made. As the states have come to appreciate the value of their game and the importance of its conservation, they have taken steps to simplify their laws and make them more comprehensive, to establish a warden service for their enforcement, and to provide the funds necessary for game protection by a system of hunting licenses. Notable progress has been made in Alabama, Louisiana, North Carolina, and Tennessee, under the direction of the state officers appointed during the last few years.

Local Laws.—A notable feature of game legislation of the Southern states, and one that has done much to retard real progress, has been the great number of local laws, many of them applicable to a single county, and all subject to frequent change. Especially has this been the case in Alabama, Maryland, North Carolina, Tennessee, and Virginia. In consequence much confusion has sometimes resulted, as is shown by the fact that in 1903 there were thirteen different seasons for hunting quail in Maryland and nineteen in North Carolina. The number of separate game laws enacted in a single state is illustrated by the record of thirty-six in Virginia in the session of 1897-98, sixty-seven in North Carolina in 1905, and seventy-nine in North Carolina in 1909.

The total number of game laws placed on the statute books in Alabama since 1865 has been about one hundred and fifty, and in North Carolina since 1885 about four hundred and fifty. The only states which have constitutional provisions for local game laws are Texas (1876), and Tennessee (1896), and the only ones which have provisions prohibiting such legislation are Kentucky (1894), Alabama (1907), and Oklahoma (1907). Tennessee, Texas, and Virginia have practically abandoned the policy, and Maryland and North Carolina are now endeavoring to bring about greater uniformity in their numerous local acts.

Non-residents.—Laws restricting or prohibiting hunting by non-residents have also been prominent in the legislation of the South. These may have originated in part in the effort to restrict market hunting, which seems to have been prevalent in the early seventies. But whatever the cause, a system of market hunting licenses was soon adopted by some states and absolute exclusion by others, followed later by general adoption of non-resident licenses and prohibition of export. As early as 1875, market hunting licenses were required in Arkansas and Florida. In 1877 Tennessee prohibited non-residents of Lake and Obion counties from killing wildfowl for market on Reelfoot Lake, and Missouri prohibited all non-residents from hunting game for sale or export. Two years later both states went further; Tennessee prohibited market hunting in thirteen counties, and Missouri prohibited all non-residents from hunting in the State. Similar local restrictions were enacted in North Carolina in 1883 and 1897, in Virginia in 1886 and 1891, and in Maryland in 1890. Between 1902 and 1904 Louisiana prohibited non-residents from hunting, and since 1903 Arkansas has prohibited them from hunt-

ing in the state, except in Mississippi county. Meanwhile, the policy of requiring non-residents to pay a license fee of $10 to $25 for the privilege of hunting has gradually been adopted by all the states except Arkansas and Georgia. Closely related to the market hunting licenses were the restrictions on export of game, which, since the adoption of the new game laws of Mississippi in 1906 and Alabama in 1907, are now in force in all the states.

Non-game Birds.—In strong contrast to the multiplicity of regulations protecting game birds, due to many local laws, stands the nearly uniform legislation protecting song birds, insectivorous species, and plume birds, commonly grouped under the term "non-game birds." Florida in 1877, 1879, and 1891, and Texas in 1891, provided special laws for the protection of plume birds. But these and other species are now protected under a practically uniform law known as the "Model Law," in force throughout the South. Arkansas first adopted it in 1897, and the other states followed in rapid succession, Oklahoma completing the list in 1909. Under this statute the killing, sale or shipment of all birds other than game (and a few injurious species mentioned by name), is prohibited throughout the year.

Warden Service.—Until recently, little or no provision was made for the enforcement of game laws, and consequently they were frequently violated. With the adoption of the license system funds became available for the employment of special officers known as game wardens, who were entrusted with the duty of protecting the game. Maryland led the way by the appointment, in 1872, of a board of "ducking police" to enforce the laws protecting wildfowl on the Susquehanna Flats at the head of Chesapeake Bay. These officers were paid from the receipts from licenses issued for the use of sink

boxes and sneak boats. All the states except Arkansas have now made provision for the employment of local game wardens. Alabama, Louisiana, Maryland, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas have state officers, and in Tennessee the work of game, fish, and forestry protection was raised to the rank of a department of the state government in 1905. Within the last five years Alabama, Louisiana, Missouri, Oklahoma, and Texas have extended their license laws to include residents, so that all who hunt now contribute directly to the protection of game. From the license fees and the receipts from fines and other sources, each of these states is assured of an annual income of $15,000 or $20,000, or more, for game protection, and is able to make the work self-supporting without additional appropriation from the state treasury.

With the general interest which has now been awakened in the conservation of natural resources, the sentiment in favor of reasonable restrictions on methods of hunting and the trade in game, and with the adoption of the license system and an efficient warden service, the outlook for the perpetuation of game is very encouraging.

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MINES AND MINING.

THE CONDITIONS IN THE PRODUCTION OF COAL IN THE SOUTH.

AMONG the many honors won by the state of Virginia in the early history of the nation belongs that of being the first, not only of the Southern states, but of the United States, in which coal mining as an industry was established. As early as 1700 the occurrence of coal had been noted in what is known as the Richmond basin, an area of about 150 square miles on the eastern margin of the Piedmont plateau in Goochland, Henrico, Powhatan, and Chesterfield counties. Nearly a quarter of a century before this, or in 1679, Father Hennepin, a Jesuit missionary, had reported a " cole mine " on the Illinois River near the site of the present city of Ottawa, in the state of Illinois. So far as known, however, there was no exploitation of the Illinois coal until 1810, and this had been preceded by the mining of small quantities of anthracite in the Lehigh district of Pennsylvania. The exact date of the opening up of the mines in Virginia is not definitely known, but it was early in the latter half of the Eighteenth century. In 1766 coal was being sent from these mines to Richmond, where it was sold at twenty-four cents a bushel, or about $6.00 per ton of 2,000 pounds. During the Revolutionary War the production of coal in this region was, for the period, an industry of considerable im-

portance. Foreign coals were kept out of our ports by the blockades, and the arsenals of the United colonies had to depend upon the product of the Virginia mines. Coal had been discovered on the Monongahela River opposite Fort Pitt (now Pittsburg), Pennsylvania, in 1759, but this region was at that time so remote from the centres of population that it was not used, except for local domestic purposes, until early in the Nineteenth century. The Virginia product had by this time developed quite a coastwise trade, and in 1789 it was being sold in Philadelphia at thirty-seven cents a bushel, or $9.25 a short ton.

The coal from the Richmond basin is not, however, of a high grade when compared with the product of the anthracite mines, or with the bituminous coals of Pennsylvania, Maryland, and other states of the Appalachian region. Hence, with the march of empire westward and the development of the fuel resources west of the Blue Ridge Mountains, the coal-mining industry of eastern Virginia fell into decay. While attempts have been made to resuscitate it, they have not been successful, and the mining of coal in the Richmond basin is now of importance only as an interesting incident in the history of the industry.

Following the War of the Revolution and until after the close of the Civil War, the population of the Southern states was engaged almost entirely in agricultural pursuits. The lands were divided into large plantations, which the employment of slave labor made it profitable to cultivate. Mining and manufacturing received little attention. Coal was not needed for fuel as the forests provided all that was required and at practically no cost. Some iron had been made in Virginia in the early days, notably at the furnace in Spottsylvania county, but

even in this charcoal, not coal or coke, was used for fuel.

Depopulated, impoverished, and prostrated as they were by the war of 1861-65, it is not surprising that some years elapsed before the Southern states were able to recuperate their strength, but when the period of convalescence began, the new growth was of a character to challenge the admiration of the world. The statistical records for the year which marked the close of the war (1865), and which was indeed the year of nativity for the New South, are necessarily incomplete. It seems, however, that except in Maryland, West Virginia (cut off in 1863 from the mother state of Virginia), and Kentucky, none of which was included in the Confederate States, coal mining had not made any progress as an industry. Some coal had been mined in some of the western states for a quarter of a century preceding the Civil War, and Missouri which was one of the Confederate states was credited with a production of 10,000 tons as early as 1840. From the best information available, it appears that the entire production in the states south of the Ohio River and the Mason-Dixon line, not including Missouri, was less than 2,000,000 tons, more than half of which was from Maryland mines. In Missouri, the only one of the Confederate states west of the Mississippi River, which was a coal producer at this time, the production amounted to between 400,000 and 450,000 tons. During the next decade there was not much development in industrial lines, and such increase as there was in coal production (except in Maryland) was largely to meet the demands of household consumption. Railroads were still, to a great extent, using wood for locomotive fuel, and manufacturing was not an important factor in the occupations of the people. The output of the coal mines at the end of

the decade, or in 1875, had grown to approximately 6,000,000 tons (including Missouri), and of this 45 per cent. was from the Cumberland region of Maryland, shipped to the seaboard at Baltimore over the Baltimore and Ohio Railroad, and to tidewater at Georgetown, D. C., over the Chesapeake and Ohio Canal, largely for the coastwise trade. At this time none of the Southwestern states, Arkansas, Texas, and Oklahoma (Indian Territory) had been credited with any production of coal, except a few hundred tons mined for local consumption in Arkansas.

It was when the New South was in the latter part of its "teens" that it began to gain in industrial strength and to acquire an impetus that has increased almost without interruption to the present time. In 1882 and 1883 attention was attracted to the wonderful iron resources in the vicinity of Birmingham, Alabama, with its wealth of coking coal and of limestone in close proximity, and following this a "boom" was developed which was unique in the history of the industrial growth of the United States. A period of financial intoxication resulted in which speculation went wild, and inflation was rampant. Naturally the bubble burst and the period of intoxication was succeeded by one of remorse and readjustment, but behind this boom there was something of a foundation, and after the reaction conditions settled down to a basis of rational progress. The iron industry of Birmingham, unlike many booms that were afterwards developed, became a fixture and that city and vicinity form to-day an important iron-making centre. The state of Alabama, which in 1875 was credited with a coal output of 67,200 tons, produced in 1885 nearly 2,500,000 tons. This was, for the time, considered a remarkable tonnage, but in the light of present day experience it becomes comparatively insignificant. In 1907, the

year of maximum activity in the coal-mining industry, Alabama produced over fourteen and a quarter million tons.

Iron making was also developed in Tennessee about the same time (1882-83), and furnaces were built at Chattanooga and Rockwood which have made those cities important industrial communities. Tennessee contributed nearly 1,500,000 tons to the total production of coal in the Southern states in 1885, and its present output is approximately 7,000,000 tons a year.

But so far as coal itself is concerned, the most significant factor in the development of the South during this period, was the completion of two trans-Appalachian lines of railroad, which made accessible some of the highest grades of steaming and coking coals in the world, those of the New River field in West Virginia, and the Pocahontas field in Virginia and West Virginia. The construction of the Chesapeake and Ohio Railroad, which penetrates the New River and Kanawha coal fields, was carried on principally during the previous decade, but while this is now one of the great coal-carrying roads of the country, it was not built with that end in view, the projectors having had in mind only the transportation of passenger traffic with such incidental freight business as might accrue. Prior to its completion a few mines had been opened on the Kanawha River, which is a navigable stream as far as Kanawha Falls, and shipments were made by barges. The advent of the railroad gave additional impetus to development, and mines were opened all along the line of the railroad and in the ravines cut by the numerous creeks which flow into the New and the Kanawha rivers. Much of the exploitation was in advance of the market requirements, and the industry suffered accordingly. But this is a condition

that has continued, in this region particularly, to the present, and there has rarely been a time even in the years of plenty when production has not exceeded either the demand or the ability of the railroads to furnish the cars or motive power for transportation.

Over the mountains from, and to the south of, the New River coal field is the famous Pocahontas region of Virginia and West Virginia, the product of which has few if any rivals for purity and for coking and steaming qualities. The credit for the development of this region belongs chiefly to the late Major Jed. Hotchkiss, an ex-officer of engineers on the staff of Stonewall Jackson. With the termination of the strife between the states, Major Hotchkiss, who was a geologist as well as an engineer, began, or possibly more correctly, resumed, the practice of mining engineering and took special interest and pride in developing the resources of his state. It was largely through his efforts that capital was attracted to the Pocahontas coal field, and the Norfolk and Western Railroad extended into the region. The first miners arrived at the present site of Pocahontas, Virginia, in January, 1882. Eighteen months later (in June, 1883) the New River division reached the mines and the first carload of coal was shipped to Norfolk and distributed among the poor of that city. This district is now the most important coal-producing region of the South, having a yearly output exceeding that of any other state south of the dividing line of the Ohio River and the Mason-Dixon line. The Pocahontas district produced in 1907 nearly 17,000,000 tons of coal, whereas Alabama, the second coal-producing state of the South, and the fifth in rank among all the states, had an output of 14,250,000 tons.

The development of the Pocahontas region at first

was slow. In 1884 an explosion occurred in one of the mines, fortunately without much loss of life, but the disaster proved an excellent advertisement as it called attention to the region. New capital was invested in mining operations, and rapid progress was made in the development of the district.

In the meantime important developments were taking place in other parts of the state. The Fairmont or Upper Monongahela district on the line of the Baltimore and Ohio Railroad was opened early in the decade 1880-90, and this region is now third in importance in the state, with an annual output of 10,000,000 tons. The Elk Garden or Upper Potomac district, an extension southward of the Cumberland region of Maryland, shipped its first cargo over the West Virginia Central Railroad to Baltimore in October, 1881.

The progress of the coal-mining industry in Kentucky and Tennessee was less spectacular than that of some of the other states, but it was a steady growth that marked the industrial progress of these commonwealths and was interrupted only by weather and trade conditions which affected temporarily the demand. Kentucky's production, which in 1865 amounted to 200,000 tons, now amounts to over 10,000,000 tons a year; while Tennessee, which at the earlier date yielded a tonnage half that of Kentucky, now produces from 6,000,000 to 7,000,000 tons a year. Missouri produces from 3,000,000 to 4,000,000 tons. The other states west of the Mississippi River, Arkansas, Oklahoma (Indian Territory), and Texas, did not assume any importance as coal producers until the New South had attained its majority. Their combined production in 1885 was 700,000 tons. Now Arkansas and Texas each produces about 2,000,000 tons a year, and Oklahoma about 3,000,000 tons.

In considering the progress made in the Southern states as written in the history of the coal-mining industry, it is well to call attention to certain economic conditions that possess peculiar interest. As has already been pointed out, the development of coal mining in Alabama has been coincident with the development of the iron and steel industry and the building up of important manufacturing communities. On the other hand, West Virginia, whose coal production is more than three times that of Alabama, has shown comparatively little progress in manufactures. It is true that West Virginia has not the local iron-ore supply which forms the basis of Alabama's industrial growth. But so far as that is concerned, neither has Pennsylvania, nor Ohio, nor Illinois, all of which are important iron-making states. The facts are that these states got the start of West Virginia, and when attention was directed in the early eighties to the unrivalled coal resources of West Virginia, the manufacturing enterprises already established in other states, furnished the markets for the fuel. Moreover, the controlling interests of the railroads that built into the coal fields were for securing the coal and coke for freight rather than for building up factories to consume the fuel near at home. Look at the result. The United States Census for 1905 shows that the gross value of the manufactured products of West Virginia in that year was $99,000,000, whereas the value of the products from the mills and factories of Alabama (with less than one-third the coal production) was $109,000,000.

The coals of West Virginia are, as stated, of the highest quality of the bituminous and semi-bituminous varieties. They excel for steaming and coking purposes the coals of Alabama, yet in 1907 the average price of Alabama coal at the mines was $1.29

per short ton, while that of West Virginia was 99 cents. In 1908 the average prices were $1.26 for Alabama and 95 cents for West Virginia coal.

The comparison, which makes an interesting study in economics, may be carried further. West Virginia and Alabama are, respectively, the second and third in importance in the manufacture of coke, Pennsylvania being first. Virginia comes fourth. The coke made in the Pocahontas, Virginia—West Virginia—region is the highest in chemical composition in the United States, and many iron masters consider it equal in physical quality to the famous Connellsville coke of Pennsylvania. The foundry coke made in the New River district of West Virginia is as much of a standard for that use as Connellsville coke is for blast furnace use. Both New River and Pocahontas cokes are superior to the product from Alabama coals and ovens, but Alabama consumes its coke in its own iron furnaces. The statistics compiled by the United States Geological Survey show that the average prices per short ton for Alabama coke were $3.05 in 1907 and $3.04 in 1908. West Virginia coke brought an average of $2.36 per short ton in 1907 and $2.00 in 1908; while the averages for Virginia coke were, for the two years, $2.44 and $1.83, respectively. In 1907 Alabama produced a little over 3,000,000 tons which were worth $9,200,000 at the ovens. West Virginia's product of 4,113,000 tons brought $9,700,000, or $500,000 more than Alabama's. In 1908 Alabama produced 2,360,000 tons of coke worth $7,170,000, while West Virginia produced 2,640,000 tons, worth $5,270,000. The advantage of using raw materials at home, and of exporting manufactured products could scarcely be more clearly shown. West Virginia is third among forty-five states in the production of coal, and thirty-first in the value of manufactures. No

other State in the Union ships out of its borders so large a percentage of its coal production as does West Virginia.

The United States Census for 1870 shows that the population of the Southern states in that year was 15,008,618 persons. Their coal production in that year amounted to 3,422,435 tons, including Missouri, or 0.23 tons per capita; the value of the manufactures was $569,800,000, or about $38 for each inhabitant. In 1880 the population had grown to 18,353,302 persons, the coal production to 4,773,337 tons (0.26 tons per capita), and the value of manufactures was $622,800,000 ($34 per capita, a relative decrease). At the Eleventh Census (1890) the population of the Southern states was 22,233,953 persons, the coal production was 21,567,532 tons (0.97 ton for each inhabitant), and the value of manufactured products was $1,242,500,000, or $56 per capita. The latest figures from which similar comparisons may be drawn are for the Census of 1900 in which the Southern states numbered $27,088,108 souls. By this time the coal production had increased to 50,485,772 tons and the value of manufactures to $1,860,100,000. The per capita production of coal was 1.86 tons and the production of value in manufactures was $69 per capita.

As previously stated, West Virginia is not of relative importance as a manufacturing state. In 1900 that state produced 22,647,207 short tons of coal, nearly 50 per cent. of the total tonnage of the Southern states. The value of her manufactured products was $99,000,000, or less than $4 for every ton of coal produced. Alabama, on the other hand, with a coal production of 8,400,000 tons, had a manufactured outturn of $109,000,000, equivalent to $13 for each ton of coal produced, and all of the Southern states, exclusive of West Virginia, produced 24,300,000 tons

of coal and $1,375,000,000 worth of manufactures, or $56.60 per ton of coal mined.

One of the most significant incidents in the development of the coal-mining industry of the South has been the completion, quite recently, of the Virginian Railway. This is the first instance in the history of the United States that a railway has been constructed from the coal regions to the seaboard. It parallels the Norfolk and Western and the Chesapeake and Ohio railroads, and was built for the purpose of transporting coal and coke from the southern part of West Virginia to tidewater at Norfolk. It will increase the coal production of the State by providing an additional outlet for its product, but it will not aid in the building up of industrial communities which make for the greatest prosperity and intelligent development of the commonwealth.

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THE DEVELOPMENT AND ECONOMIC INFLUENCE OF PETROLEUM AND NATURAL GAS IN THE SOUTHERN STATES.

IT will be evident from the facts set forth in this article, that petroleum wherever and whenever it has been found in the South has been of the greatest consequence in the material prosperity of the region concerned. It has been still more important in its effect in stimulating ingenious contrivances for its procuring and for its effective use. Over all have been the blessings it has bestowed of bright light at low cost, and of cheap fuel in the development of the Southwest. In later years the influence of natural gas has been of similar importance in the same directions.

Indeed it would be interesting and valuable to consider this subject under three chapters devoted to

the material, the inventive, and the educational development of the Southern states as influenced by these two mineral substances, so exceptional in what they require in their utilization. But the same effects will be clear from a simpler, chronological study.

To the earliest settlers the existence of petroleum made itself manifest in many parts of the South in the form of seepages—the so-called "tar springs" of the Gulf coast in Louisiana and Texas. In West Virginia and Kentucky the seepages of petroleum are of a different nature—free from "tar" and hence were more noticeable as iridescence on streams and springs. There the lighter portions and accompanying gas could easily be ignited with such picturesque effect as to call for fire worship from the Indians.

West Virginia, Kentucky, and Tennessee.—In the latter part of the Eighteenth century, the settlers from eastern Virginia crossed through Thoroughfare Gap by trails made by wild animals seeking the great salt, or buffalo lick on Kanawha River. It is stated by I. C. White, state geologist of West Virginia, that the settlers were prompt to note these burning springs, and that General Washington visited a burning spring in 1775, nine miles above Charleston, on the Kanawha, preëmpted it for his military services, and afterwards deeded it to the public forever.*

The settlers had little need for oil fuel, but they sorely needed salt, and in procuring brine from the salt springs the accompanying oil was forced upon them.

In White's report, cited above, he quotes a letter from Dr. J. P. Hale, published in *Resources of West Virginia,* by M. F. Maury and Wm. M. Fontaine, describing the beginning of the salt and petroleum industry at Salt Lick in 1806, by the phenomenal

*Page 2 of Vol. I, of the *Reports* of the *Geological Survey of W. Va.*

persistence of two brothers, David and Joseph Ruffner, who put down the first driven well in what became the oil regions, and continued by putting down the first "drilled well." This work is noteworthy because the ingenuity of the Ruffner brothers developed several of the devices, afterward generally used by the oil well fraternity, which came to be considered essential. Dr. Hale states:

"In order to reach, if possible, the bottom of the mire and oozy quick-sand through which the water flowed, they provided a straight well-formed hollow sycamore tree, with four feet internal diameter, sawed off square at each end. This is technically called a 'gum.' This gum was set upright on the spot selected for sinking, the large end down, and held in its perpendicular position by props or braces, on the four sides. A platform upon which two men could stand, was fixed about the top; then a "swape" was erected, having its fulcrum in a formed post set in the ground close by. A large bucket, made from half of a whiskey barrel, was attached to the end of the pole to pull down on, to raise the bucket. With one man inside the gum armed with pick, shovel and crowbar, and three or four to work the swape, the crew and outfit were complete.

"After many unexpected difficulties and delays, the gum, at last, reached what seemed to be rock bottom, at thirteen feet; upon cutting it with picks and crowbars, however, it proved to be but a shale or crust, about six inches thick, of conglomerated sand, gravel and iron. Upon breaking through this crust the water flowed up into the gum more freely than ever, but less salt.

"Discouraged at this result the Ruffner brothers determined to abandon this gum and sink a well out in the bottom, about one hundred yards from the river. This was done, encountering, as before, many difficulties and delays; when they had gotten through forty-five feet of alluvial deposit they came to the same bed of sand and gravel upon which they had started at the river.

"To penetrate this they made a 3½-inch tube of a twenty-foot oak log, by boring through it with a long, shanked augur. This tube, sharpened and shod with iron at the bottom, was driven down, pile driver fashion, through the sand to the solid rock. Through this tube they then let down a glass vial with a string to catch the salt water for testing.

"They were again doomed to disappointment; the water, though slightly brackish, was less salt than that at the river. They now decided to return to the gum at the river, and, if possible, to put it down to bed rock. This they finally succeeded in doing, finding the rock at sixteen to seventeen feet from the surface.

"As the bottom of the gum was square and the surface of the rock uneven, the rush of outside water into the gum was very troublesome. By dint of cutting and trimming from one side and the other, however, they had, at last, gotten nearly to a joint, after which they resorted to thin wedges, which were driven here and there as they would do the most good.

"By this means the gum was gotten sufficiently tight to be so bailed out as to determine whether the salt water came up through the rock. This turned out to be the case. The quantity welling up through the rock was extremely small, but the strength was greater than any yet gotten, and this was encouraging. They were anxious to follow it down, but how? They could not blast a hole down there under water; but this idea occurred to them; they knew that rock blasters drilled their powder holes two or three feet deep, and they concluded they could, with a longer and larger drill, bore a correspondingly deeper and larger hole.

"They fixed a long iron drill, with a 2½-inch chisel bit of steel, and attached the upper end to a spring pole, with a rope. In this way the boring went on slowly and tediously till on the 1st day of November, 1807, at seventeen feet in the rock, a cavity or fissure was struck, which gave an increased flow of a stronger brine. This gave new encouragement to bore still farther; and so, by welding increased length of shaft to the drill, from time to time, the hole was carried down twenty-eight feet, where a still larger and stronger supply of salt water was gotten.

"Having now sufficient salt water to justify it, they decided and commenced to build a salt furnace; but while building, continued the boring, and on the 15th of January, 1808, at forty feet in the rock, and fifty-eight feet from the top of the gum, were rewarded by an ample flow of strong brine for their furnace, and ceased boring.

"Now was presented another difficulty; how to get the stronger brine from the bottom of the well, undiluted by the weaker brines and fresh water from above; there was no precedent here; they had to invent, contrive and construct anew. A metal tube would naturally suggest itself to them; but there were neither metal tubes, nor sheet metal, nor metal workers—save a home-made blacksmith—in all this region, and to bore a wooden tube forty feet long, and small enough in external diameter to go in the 2½-inch hole, was impracticable; what they did do, was to whittle out two long strips of wood, two long half tubes of the proper size, and, fitting the edges carefully together, wrap the whole from end to end with small twine; this with a long bag of wrapping near the lower end, to fit, as nearly as practicable, water tight, in the 2½-inch hole, was cautiously pressed down to its place, and found to answer the purpose perfectly; the brine flowed up freely through the tube into the gum, which was now provided with a water tight floor or bottom, to hold it; and from which it was raised by the simple swape and bucket.

"Thus was bored and tubed, rigged and worked the first rock-bored saltwell west of the Alleghanies, if not in the United States. The wonder is not that it required eighteen months or more to prepare, bore and complete this well for use, but, rather, that it was accomplished at all under the circumstances. In these times, when such a work can be accomplished in as many days as it then required months, it is difficult to appreciate the difficulties, doubts, delays and general troubles that beset them then. Without preliminary study, previous experience or training, without precedents in what they undertook, in a newly settled country, without steam power, machine shops, skilled mechanics, suitable tools or materials, failure, rather than success, might reasonably have been predicted."

The manufacture of salt from brines extended to the other side of Ohio River, and the wells drilled after the fashion established by the Ruffner brothers and with the aid of the seed bag, also first used in the Kanawha wells and with other pieces of apparatus, the rudiments of present drilling methods were established. These wells frequently yielded petroleum as well as salt water, and this was used as fuel in evaporating the salt. From Ohio the salt industry extended to Kentucky, and oil was so frequently obtained with the brine that it made well known the oil-producing districts of Wayne county and elsewhere in that state. From an economic standpoint the oil was important, not so much for the uses made of it, as for the devices for storing and transporting it, which had to be developed in order to care for this inflammable substance.

As an important article of commerce, the history of petroleum in the South begins with the second half of the Nineteenth century, with the excitement aroused by the development of the Drake well, in Pennsylvania, and the flood of oil which followed. Borrowing the modern developments of the methods of production which originated in West Virginia, and adopting the Pennsylvania systems of opening oil territory, the western portion of West Virginia developed with the same wonderful rapidity characteristic of the oil regions to the north. Even the frenzied conditions of gold production of ten years before in California were reproduced in the oil speculation in West Virginia, with the additional economically important feature of a bulky product as compared with gold. Not only were towns and villages of all sizes and the accessories of unusual transportation facilities developed far before their time, but the rail, steamboat (and eventually pipe-line) facilities

RESIN ON PIER AT SAVANNAH, GEORGIA, READY FOR SHIPMENT.

for handling petroleum were such as would not have been required in the normal agricultural development, or for the trade of this region for many years to come. This first development of petroleum was not always successful, inasmuch as the frequent quick decline of production here and there, throughout the territory concerned, rendered much investment useless, with a great final loss to the community. Nevertheless, once established, heroic efforts were put forth by the people to sustain the unusual transportation features developed especially for the oil trade. Thus, a few years brought about developments in West Virginia which could not otherwise have been looked for within a half century.

The production of petroleum in West Virginia since the drilling of the Drake well in 1859, is shown in the footnote below.* The state has not yet reached its maximum.

Kentucky, in spite of a few sensational wells, did not respond with so great a production as West Virginia. Still many counties owed their development to the search for and the development of petroleum. The interest in the search for petroleum naturally extended south from Kentucky into Tennessee, but with progressively poorer results, and this is true also of oil indications in northern Alabama.

Development of the Gulf Region.—In Louisiana were very marked evidences of petroleum, associated more or less intimately with large deposits of rock salt. Sometimes springs actually flowed sufficient oil to be valuable as a natural lubricating oil for

*1876, 120,000 barrels; 1877, 172,000 barrels; 1878, 180,000 barrels; 1879, 180,000 barrels; 1880, 179,000 barrels; 1881, 151,000 barrels; 1882, 128,000 barrels; 1883, 126,000 barrels; 1884, 90,000 barrels; 1885, 91,000 barrels; 1886, 102,000 barrels; 1887, 145,000 barrels; 1888, 119,448 barrels; 1889, 544,113 barrels; 1890, 492,578 barrels; 1891, 2,406,218 barrels; 1892, 3,810,086 barrels; 1893, 8,445,412 barrels; 1894, 8,577,624 barrels; 1895, 8,120,125 barrels; 1896, 10,019,770 barrels; 1897, 13,090,045 barrels; 1898, 13,615,101 barrels; 1899, 13,910,630 barrels; 1900, 16,195,675 barrels; 1901, 14,177,126 barrels; 1902, 13,513,345 barrels; 1903, 12,899,395 barrels; 1904, 12,644,686 barrels; 1905, 11,578,110; 1906, 10,120,935 barrels; 1907, 9,095,296 barrels; 1908, 9,523,176 barrels.

minor uses. As early as 1880, at least a barrel a day was thus used from springs in Louisiana.

In Texas so many regions became well known for their seepages of oil, that many sporadic developments, with, however, more or less insignificant results, led to a small but gradually increasing production of petroleum. The following counties produced oil in 1899: Bexar, Nacogdoches, Hardin, and Navarro, where the Corsicana field furnished nearly the entire product, until a sudden flood of oil in the region of Beaumont, Texas, the history of which is of economic importance.

The statistics below* from *Mineral Resources,* 1899, shows the entire recorded production of oil in Texas to the close of 1900.

The petroleum awakening in the South began with the drilling of the well at Spindle Top, near Beaumont, Texas, by Anthony F. Lucas, in 1900. This development of Beaumont is, like the drilling of the first oil well in West Virginia, the story of a personality. Between 1890 and 1897 Captain Lucas had charge, as mining engineer, of the development work of the Petite Anse salt mines on Avery's Island, Louisiana. Many drillings showed oil in connection with the salt and similar evidences of petroleum were impressed upon him in drilling a deep well for Joseph Jefferson, on Orange Island. He then drilled for oil on Belle Isle, near Morgan City, finding encouraging indications, but no commercial supply. What would have been complete discouragement to many men was really encouraging to this persistent engineer. The conditions of the occurrence of petroleum in Louisiana and of the allied substances, salt, sulphur, and natural gas, are not well understood to-

*The entire recorded production of oil in Texas to the close of 1900, is as follows: 1889, 48 barrels; 1890, 54 barrels; 1891, 54 barrels; 1892, 45 barrels; 1893, 50 barrels; 1894, 60 barrels; 1895, 50 barrels; 1896, 1,450 barrels; 1897, 65,975 barrels; 1898, 546,070 barrels; 1899, 669,013 barrels; 1900, 836,039 barrels.

day, and they were even more obscure then. But to any determined, persistent student, with confidence in his own good judgment—and that describes Lucas—the evidence seemed conclusive that the Gulf coast must yield large supplies of oil, the uncertain question being where would the supplies be tapped. Lucas came to Washington in 1898 and expressed to the writer his definite conviction that a well should be drilled at Spindle Top, Texas. He asked coöperation in developing the project, but this was not within the scope of my official work. His subsequent trip to New York was fruitless, for the small yields of oil at Sour Lake and Corsicana had aroused no interest in Texas as an oil-producing region. Finally Messrs. Guffey and Galey, veteran oil-well drillers, joined with Lucas and they drilled the "Lucas" well. It proved the greatest gusher that the United States has known and defied control until all efforts at temporary reservoirs had proven insufficient and fire had done great damage and consumed a fortune in oil. It is estimated that the first nine days' run wasted not less than one hundred thousand barrels per day until the well was brought under control. The resulting excitement equalled any of the frenzy of other oil fields in earlier days, and brought growth to the coast region more rapidly than any other factor in the progress of the South. Aside from perhaps four hundred purely speculative companies, much money was legitimately invested in leases and well drilling, with good results in the oil obtained. Spindle Top is a low mound, making a merely noticeable rise from the surface of the prairie. The drills soon showed the pool to be limited to the mound. There are many such low elevations in the Gulf region and the drilling craze spread to them all. Sour Lake and Saratoga received much greater attention and Batson's Prairie,

Hoskins Mound, and other productive pools were quickly developed. There is no geological distinction to the east in Louisiana, so that the pools of Jennings and Welsh were soon added.

Since 1899 the production of oil in the South has been as follows:

PRODUCTION OF CRUDE PETROLEUM IN THE SOUTHERN STATES, 1900-1908.

	West Virginia.	Kentucky and Tennessee.	Texas.
1900	16,195,675	62,259	836,039
1901	14,177,126	137,259	4,393,658
1902	13,513,345	185,331	18,083,658
1903	12,899,395	554,286	17,955,572
1904	12,644,686	998,284	22,241,413
1905	11,578,110	1,217,337	28,136,189
1906	10,120,935	1,213,548	12,567,897
1907	9,095,296	820,844	12,322,696
1908	9,523,176	727,767*a*	11,206,464
Totals	109,747,744	5,916,915	127,743,586

a No production in Tennessee recorded in 1908.

	Missouri.	Oklahoma.	Louisiana.	Total for the South.
1900	1,602*a*	6,472	.....	17,176,761
1901	2,335*b*	10,000	.....	18,899,529
1902	757*a*	37,100	548,617	32,700,557
1903	3,000*a*	138,911	917,771	32,401,149
1904	2,572*a*	1,366,748	2,958,958	44,463,440
1905	3,100*a*	.....	8,910,416	61,858,647
1906	3,500*a*	.....	9,077,528	54,702,056
1907	4,000*a*	43,524,128	5,000,221	73,176,706
1908	15,246*a*	45,798,765	6,835,130	75,908,329
Totals	36,112	90,882,124	34,248,641	368,575,122

a Includes the production of Michigan.
b Includes production of Michigan and small production in Oklahoma.

Of greatest importance to the state was the overproduction and consequent decline to even ten cents per barrel for the crude oil. This caused its immediate adoption on the railroad locomotives in place of coal, and manufacturing enterprises sprang into existence to meet half way the legitimate demands of southwest development for the next twenty years.

Besides refineries on the coast and connecting pipelines, as well as the stimulus of a cheap fuel for manufacturing, the great gain to Texas and Louisiana was the import trade to Gulf ports in return for exports of oil.

The influence of the Lucas well and its results, extended to Mexico, and north into Oklahoma and Kansas. It is difficult to picture, let alone measure, the influence of such a great field in encouraging the development elsewhere, but it must be remembered that where many industries are paralyzed by overproduction, such is not the case with petroleum. The cost of drilling is well paid by a good producer, even at a low oil price, provided the product can be marketed, and the demand from railroads and others has given vent for all the oil.

No industry is so independent of good or bad times as oil production. The necessity of pumping the oil from the earth before it goes up through the well of a rival producer, rules all other considerations, and, hence, the product is the greatest amount the region can be made to produce within a given time—no matter what the price may be according to rules of supply and demand. Therefore the flood of Texas oil offered no obstacle to the development of great stores in Oklahoma and Kansas. Then, natural gas found in water wells in Caddo parish in the northwestern corner of Louisiana forced itself upon the attention of a young geologist, A. C. Veatch, who was studying the underground water supply of that region. Perhaps for the first time in the history of great oil developments, this field was predicted by Veatch from purely geological study. He wrote to influential men in the district and strongly urged drilling for oil and gas and the first well was drilled by his advice. This field constitutes the greatest natural gas field in the United States at present, and

in addition to stimulating industrial activity, it has also been the scene of the most profligate waste of a mineral product ever known in history.

The distribution of petroleum and natural gas in the Southern states is shown in the following table:

Estimated oil-bearing areas in the Southern states, in square miles.

Alabama	50
Kansas	200
Kentucky	400
Louisiana	69
Missouri	30
Oklahoma	400
Tennessee	80
Texas	400
West Virginia	570

Estimated natural-gas-bearing areas in the Southern states, in square miles.

Alabama	40
Arkansas	100
Kansas	260
Kentucky	290
Louisiana	110
Missouri	70
Oklahoma	500
Texas	130
West Virginia	1,000

The future of petroleum production in the South must see many other large pools developed in Louisiana and Texas. Further supplies are probable in Mississippi and in northern Alabama, and with each will come the development of local manufacturing beyond what could be achieved by any other industrial impulse.

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BUILDING AND ORNAMENTAL STONE.

PRIOR to the War of Secession, excepting in the immediate vicinity of some of the larger and growing cities, and in regions like the Valley of Virginia, there had been but slight development of the quarrying industry throughout the South. This was due not more to a lack of demand for the material, than to geological conditions and lack of transportation facilities. Stone is heavy, and is transported only with considerable expense under the most favorable of circumstances. Throughout New England, glacial erosion has stripped off the residual covering of rock decay, leaving the underlying stone firm and fresh and favorable to quarrying, exposed to the very surface or covered with but a comparatively thin layer of sand and soil. Moreover, many quarries were situated so near to navigable waters that the cost of transportation was reduced to a minimum. The proximity, too, of the largest cities of the Atlantic states to these same waters provided a market easily reached by sailing vessels, always the cheapest method of transportation for heavy, non-perishable material. Water transportation, rather than quality of stone, led the government, in 1791, to purchase the quarries at Aquia Creek in Virginia, to supply materials for the public buildings in the city of Washington.

Still another fact which conditioned the early development of the quarry industry in the South was that the broad belt of flat lands forming the coastal plain of geologists, which extends from Long Island, N. Y., in varying width to southern Texas, carries little or nothing in the way of building material and absolutely nothing of more than local importance. It is not until the Piedmont plateau, or area of metamorphic and other crystalline rocks is reached that such appear. This plateau, which borders on the coast as far as Long Island, gradually retreats inland in a southwesterly direction, and is accessible to vessels only on the larger tidewater streams, such as the Susquehanna, Potomac, and James. Even with these, navigability ceases almost at the front edge of the plateau, which marks the fall line. The Mississippi, the largest of our navigable rivers, flows through a region of sedimentary, unaltered sandstones and limestones, and these are not in form to be available south of the junction with the Ohio.

With the increase in wealth and population of the cities of the South, there arose a demand for an increased supply of material, which naturally led to a search for the same nearer home, whereby the expense of the long haul to market and consequent delay in construction, as well as in settlement of accounts, could be avoided. Multiplicity of railroad building opened up areas heretofore inaccessible, and made it possible to introduce by means of transportation routes—mile for mile more expensive than by vessel, yet on the whole less so on account of distance—materials from nearby sources. The Southern Railway with its connections, reaching from New York to Florida and the Mississippi, the Chesapeake and Ohio, and the Atlantic Coast Line are perhaps the best illustrations of this.

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MARBLE QUARRY NEAR KNOXVILLE, TENNESSEE.

In addition to all of this, climatic conditions throughout the South are such that it has been found possible to carry on the work of quarrying during the larger portion of the year, while in the North work must often be stopped for long periods owing to the severe cold of the winter months.

These latter advantages on the part of the South are offset to some extent by the presence in many cases of a considerable layer of decomposed or, at least, worthless material on the surface, which must be removed before the actual quarrying can be done. Fortunately, however, this work requires only such unskilled labor as the South has in abundance and as can be employed at low rates of remuneration.

Thus it is that there has arisen an industry, which scarcely existed prior to 1865, but which yielded a return of $1,641,049 in 1880, $5,664,000 in 1890, and upwards of $10,000,000 in 1897. The following are the detailed statistics for this last year, in the first column being given the value of the high grade material used for building, monumental or ornamental work, and in the second the total of all kinds exclusive of that used for limeburning, fluxes or chemical manufacture.

Maryland	$299,117	$1,553,965
Virginia	55,679	658,491
West Virginia	106,302	509,346
North Carolina	429,713	932,909
South Carolina	60,840	129,377
Georgia	1,136,793	1,727,277
Florida	.....	15,000
Alabama	103,955	244,193
Texas	141,878	436,800
Arkansas	6,080	323,978
Oklahoma	50,950	270,951
Missouri	623,414	2,241,055
Kentucky	253,611	963,281
Tennessee	720,865	919,146
Totals	$3,989,197	$10,925,769

The principal centres of industry in the South to-day are, for marble, Cockeysville, Md., Fannin, Gilmer, Pickens and Tate counties, Georgia, and near Knoxville, Tennessee; for granite, Mount Airy, N. C., Rion, S. C., Atlanta, Ga., Burnet, Tex., and Iron and St. Francois counties, Missouri. The most noted limestones of the South, aside from marbles, are those of Bowling Green and Green River, Kentucky.

Naturally, the industry has proven of more than local importance. In some instances, as is the case with the marbles of Tennessee and Georgia, the stone is of a nature not produced elsewhere, and therefore finds a ready market in all cities east of the Mississippi Valley and to some extent in those farther west. This fact had led, in many cases, to the opening of quarries in this area by firms already engaged in business in the North. Here a transfer of Northern capital, workmen and methods to the new fields has resulted. With the development of the industry, the lack of skilled labor in the South was at first keenly felt, but the want has been supplied by white labor from the North. Of late years this labor has been to a considerable extent of foreign extraction, if not of foreign birth.

No quarry produces any great amount of stone in advance of its contracts. Further than this, the quarries of to-day contract not merely to furnish the stone, but to furnish it cut for the structure of which it is to form a part, and it may be even to the placing of the stone in the wall itself. It follows, perforce, that quarrying is carried on coincidentally with building, and when one industry is quiescent, the other is also. A large contract may give rise to a considerable community of workers for weeks, months and perhaps years, but an interregnum between contracts often results in so far

closing down these works that a large portion of the workmen are scattered to others which in their turn are active. As the industry is one subject to these fluctuations, so it happens that throughout the quarry region one finds a considerable proportion of floating population—a body of workmen that come and go according to the condition of the labor market.

There are, it is safe to say, few branches of industry in which so large a proportion of the value of output depends upon the labor connected with it. The stone itself exists, in most cases, in quantities inexhaustible for many generations to come. It is the labor of quarrying, cutting and cost of transportation that gives it value. Further than this, quarry development takes place in suburban and outlying districts more or less remote from cities, and often in isolated communities previously almost entirely cut off from direct contact with the outside world. The consequent influx of population, often largely foreign and given to frequent changing as noted above, the periodic disbursements of money in districts where little ready money was before available, the establishment of easy routes of transportation—these and other minor incidentals have brought about their inevitable results, in part beneficial and in part harmful, but all tending to raise the general standard of living and broaden the mental outlook of those immediately concerned.

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THE CEMENT AND GYPSUM INDUSTRY OF THE SOUTH.

THE *Cement* industry of the South, representing a trifle more than one-tenth of the total production of the United States in 1907, shows the same economic changes as are displayed by the more generally distributed industry. Cement manufacture began with the preparation of natural cements during the period of internal improvements, especially canal construction, during the early decades of the Nineteenth century. Beginning in New York in 1818, the industry was established in Maryland (1836), Virginia (before 1835), Kentucky (1829), and Tennessee before the war. In each of these states, except the last, the industry grew slowly but steadily until the advent of Portland cement, which through superior qualities rapidly replaced natural cement in spite of the lower price of the latter. By the beginning of the Twentieth century the natural cement plants had succumbed, in large measure, to the competition. Some of the operators tore down their plants, others converted them into lime-kilns or remodeled them for the manufacture of Portland cement. From a

production in the South of approximately a million barrels of natural cement in 1902 the output has fallen to less than 130,000 barrels in 1908. During the same interval the production of Portland cement has increased from less than 500,000 barrels in 1902 to 5,134,344 barrels in 1908.

The natural cement plants of the South, where the industry began before 1840, include those of the Potomac Valley at Hancock, Maryland (1836), Cumberland, Maryland (1836), and Shepardtown, West Virginia (1830?); those of the Shenandoah Valley in Rockbridge county, Virginia (1835) and at Balcony Falls, Virginia (1848); those of Georgia at Cement in Boutow county (1889), and at Rossville (1900); those of Texas at San Antonio (1880?), Austin and Dallas; and those of the Louisville, Kentucky, district (1829). Most of these have continued in active operation from the date of their erection as indicated, until recently; those of Cumberland, Balcony Falls, Georgia, San Antonio, and Louisville reporting productions as late as 1907. Some of these, as at Rossville, Cement, and San Antonio are equipped to make both natural and Portland cements.

The Portland cement plants now in active operation with an annual production of nearly 5,000,000 barrels are of recent erection. They include the mills at Security, Maryland, erected in 1908; Craigsville, Virginia, in 1900, Rossville, Georgia, in 1900, and Rockmart, Georgia, in 1903; Spocasi, Alabama, 1903; San Antonio, Texas, in 1900, and Dallas, Texas, in 1903; St. Louis, Missouri, in 1902; Hannibal, Missouri, in 1903; Kansas City, Missouri, in 1906; Courteney and Casondelet, Missouri, in 1907; Kosmosdale, Kentucky, in 1905; and Copenhagen, Tennessee, in 1906.

With these may be mentioned the slag or Puzzolan cement mills of Sparrows Point, Maryland (1897-

1905); two plants near Birmingham, Alabama (before 1900), and that at Ashland, Kentucky in (1905).

The fact that the Southern cement mills have not worked to their full capacity for the last two or three years, coupled with the decline in the rate of increase of production, and the actual drop in average price per barrel below the low prices for 1904 and 1905 to the lowest figure ever reached in the history of the American Portland cement industry, would seem to indicate that the vigorous growth of this young industry had reached a more mature stage of development in which the relations of supply and demand will become more delicately adjusted. The demands for cement are bound to grow, and the fifteen or twenty cement mills of the South would seem insufficient to meet the future requirements. The erection of cement mills and the establishment of new brands on a firm industrial basis require large expenditures of capital, and it is reasonable to expect that the period of greatest expansion in cement manufacture has already been reached.

The *Gypsum* industry of the South is practically limited to three centers—Southwestern Virginia, Texas, and Oklahoma. The Virginia deposits underlie the North Fork of the Holston river in Smythe and Washington counties, in the vicinity of Saltville. The material has been worked since the first of the last century, most of the product being used chiefly as land plaster. Rogers, Hotchkiss, and others have called attention to the great extent and purity of the deposits but the annual production, according to the statistics available, had not exceeded 20,000 tons prior to 1907. Through the recent developments the output of the region has been considerably increased. The material is put upon the market in the form of wall-plaster, hard plaster and land plaster, with a

small but increasing use as an ingredient of Portland cement.

The Texas deposits were developed after those of Kansas, although they have been known to exist since the early explorations of Captain Marcy (1852) and Dr. Shumard (1855). Rock gypsum is the principal type of deposit in Texas, and according to Adams no efforts had been made to locate deposits of gypsite or gypsum earth up to 1904. The two or three plants for the manufacture of gypsum deposits are located at Acme and Quanah near the northern border of the state. Undeveloped deposits are known to occur southward from these points along the eastern foot of Staked Plains in El Paso county; east of the Guadaloupe mountains, and in the Malone mountains. These furnish an immense reserve for future development, but are more or less unavailable at present through lack of proper transportation facilities and local demand.

The Oklahoma deposits are a connecting link between those of Texas already described and those which have been long known in Kansas. The development of these deposits, estimated by both Adams and Gould as over 125,000,000,000 tons of rock gypsum exclusive of gypsite, is only just beginning. This is due to the cost of transportation and the scarcity of fuel. Most, if not all, of the material worked at present comes from the local, easily exhausted deposits of gypsum earth which may be quarried cheaply by steam shovels and scrapers in open cuts. Mills were first erected in the region in the closing years of the last century, and only four mills were in operation in 1904. Three years later the number had risen to seven and the future of this industry seems very bright.

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THE CLAYWORKING INDUSTRY IN THE SOUTH SINCE 1865.

IN discussing the economic development of the clay-working industry in any given region several important factors have to be considered, some or all of which may exert a strong influence. These are (1) Raw materials; (2) Markets; (3) Transportation facilities, and (4) Labor supply.

With the exception of the higher grades of ware such as porcelain and white earthenware, the manufacture of clay products must usually develop near the source of supply of the raw materials. Nearby markets are also essential as most clay products, of low or medium value, will not bear the cost of long

transportation. But even with the establishment of local demand, this may be so small for wares above the grades of brick or drain tile, that the local plants cannot be established on a sufficiently large scale to permit economy of production and enable them to compete successfully with larger and well-equipped plants located sometimes at a greater distance. The importance of proper transportation facilities is self-evident, and, as regards the labor problem, it is often difficult to keep skilled workmen in a district, where there are not sufficient openings, so that in case one factory shuts down they can get employment at some other one nearby. In the South none of these factors is without weight.

In taking a general view of the ceramic industry as at present developed in the South, one is perhaps struck with the absence of segregation of plants, that is to say, there are comparatively few centres developed, around which many and large plants are clustered. On the contrary, the developments have been mainly of a local character, many small or medium-sized brick yards, potteries, etc., being scattered all over the territory under consideration. Though these are small, they must have contributed materially to the business prosperity of the South, for we find that the total value of their products in 1908 was a little over twenty-four million dollars. This represents an increase of over 225 per cent. since 1894 (the first year for which we have approximately accurate statistics), when it was but a little over ten and a half million dollars.

For greater clearness the subject of development may be discussed under two heads, viz. (1) The clay mining industry, and (2) the manufacture of clay products.

1. *Clay Mining Industry.*—It is interesting to note that nearly all of the domestic supply of high

grade clay, mined for the manufacture of white ware, and used at East Liverpool, Ohio, Trenton, New Jersey and other potting centres, is obtained from the Southern states. Florida supplies ball clays, which have been worked since 1892; North Carolina furnishes china clay, worked since 1888, while South Carolina and Georgia have supplied similar material since the middle nineties. Ball clays have also been mined in Kentucky and Tennessee for some years, and additional ones in southeastern Missouri since 1880.

One may reasonably inquire why the presence of clay necessary for the manufacture of white ware has not stimulated the development of such an industry at those points in the South where the china and ball clays are found. It has; but the attempts to make these higher grades of pottery have been sporadic, and mostly unsuccessful, due in part to the fact that the other raw material, such as flint, feldspar, fuel, together with skilled labor, are not near at hand, and that an industry drawing its supplies from widely separated points should be centrally located. The only district in the South, therefore, where the whiteware industry has grown to any prominence is in the Ohio Valley region of West Virginia. But there it forms a part of the great potting district of which East Liverpool, Ohio, is the commercial centre. A smaller centre exists at Baltimore, Maryland.

Another important raw product is the glass-pot clay, mined and washed at St. Louis since before 1865, which is shipped to many parts of the country, and replaces to some extent that formerly shipped from abroad.

The fullers earth, used for clarifying oils, though dug in southwestern Georgia and northwestern Florida since the early nineties, has not been pro-

duced in sufficient quantities to materially swell the value of the mineral production of the South.

2. *Manufacture of Clay Products.*—With the settlement of any region the first type of clay product usually demanded is bricks for structural work. These may first be supplied by small yards, but later, with increasing population, by larger and better equipped plants. Bricks have been made in all of the Southern states since an early date, and there has been a considerable increase in production since 1865, but the growth of the industry has been mainly around the larger cities. The local demand of the outlying districts has been supplied chiefly by small yards, sometimes of only a temporary character, and capable of establishment at almost any point because of the wide-spread occurrence of surface clays.

Pressed-brick works have been but little developed, except in the Alexandria district of Virginia and in the vicinity of St. Louis, Missouri. Their firm establishment at the former point is due to a strong and continuous local demand, while at the latter point the existence of fire-clay beds, together with excellent shipping facilities has aided their growth. Moreover the product has a strong hold on many southern, central, and western markets located along lines radiating from this district.

The important development of St. Louis as a clay-working centre is due to more than this, for the local fire-clays also serve as the basis of a flourishing sewer pipe, fire brick, and terra-cotta industry.

The building of small blast furnaces in the iron-producing districts has encouraged the erection of a number of small fire-brick plants, but the growth of a tremendous demand from such great centres as Birmingham has not been satisfied by local works,

partly because of the lack of proper clays in that particular region. This demand has been met in part by St. Louis and in part by other central or northern plants, although some of the most refractory clays found in the country are worked in northeastern Kentucky, and have been since 1871.

The South can claim the distinction of having inaugurated the use of paving brick for highways, for at Charlestown, West Virginia, there was laid the first brick pavement. The bricks were, it is true, only hard-burned building brick, but many were shipped to Ohio, and their use served to initiate the paving-brick industry, which has since shown such a phenomenal growth, especially in the central states.

Many small earthenware and stoneware potteries have sprung up in all parts of the South, but aside from the West Virginia industry and the somewhat smaller Baltimore centre mentioned above, there have been few noteworthy developments.

There has of late years been a strong movement towards the development of art pottery works in the United States, and some of these have won an enviable and national reputation. Among the latter few, must be included the Newcomb Art Pottery at New Orleans. This institution was started as an experiment in the practical field of applied art in 1895. As Professor Woodward the director states: "Industrial conditions in the far South did not give much encouragement for the study of art as a profession, owing to the lack of manufacturers who might call for trained designers, etc. To give an object lesson in the value of art training, pottery manufacture was introduced, and so successful has the school been, that the business has grown to some magnitude, and the ware, which is known through-

out the country, has had an influence of great educational and practical value."

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THE PRODUCTION OF SOUTHERN PHOSPHATE ROCK IN RELATION TO COMMERCIAL FERTILIZERS SINCE 1865.

THE occurrence of rock phosphates in the United States has a very important bearing upon the agricultural industry, since many plants cannot exist without the presence of phosphoric acid in the soil. Growing crops deplete the soil of its phosphoric acid, and if no steps are taken to restore this substance the soil must eventually become non-producing.

The history of the phosphate industry of the United States is confined entirely to a history of the Southern states. South Carolina, Florida and Tennessee have for several years been the main source of supply for the country. North Carolina, Alabama and Pennsylvania have produced phosphate rock, but never on a large scale, and there is at present no production from these states. In 1900 Arkansas entered the field as a producer, but the rock is of low grade and not at present available.

Phosphate rock as it exists in nature contains phosphoric acid in an insoluble form. In order to make it available for plant use it must be transformed into a form which is soluble in water. The phosphoric acid exists in the rock as tricalcium

phosphate. When mixed with sulphuric acid, two of the three portions of lime contained unite with the acid, forming gypsum or land plaster. At the same time the third portion of lime unites with the phosphoric acid liberated, giving phosphate of lime, which is soluble in water. This is the superphosphate fertilizer of commerce.

The commercial manufacture of chemical fertilizers in the United States began in 1853 in Baltimore, Maryland. At this time the importance of phosphoric acid in plant growth was fairly well recognized, and in 1855 Mr. John Kettlewell established a plant in Baltimore for the manufacture of superphosphate fertilizer, deriving his phosphoric acid from Mexican guano. In 1859, Professor Shepard and L. M. Hatch suggested the utilization of phosphatic marls in the manufacture of commercial fertilizers, and started a factory at or near Charleston, South Carolina, which was, however, soon abandoned.

Until 1867 all phosphatic material for fertilizer manufacture was imported, but the discovery in that year of phosphate rock near Charleston marked the great beginning of the fertilizer industry in the United States. The Charleston Mining and Manufacturing Company, backed by Northern capital, was organized for the exploitation of the South Carolina phosphate rock. The formation of this company was directly due to the efforts of Professor Francis S. Holmes and Dr. N. A. Pratt, who had been among the first to fully recognize the value of the phosphate deposits around Charleston. Professor Holmes was president, and Dr. Pratt, chemist and superintendent of the company. From this time the industry developed rapidly, and in 1870 there were thirteen companies in South Carolina engaged in mining the rock and manufacturing it into fertilizers.

There are two classes of phosphate rock in South Carolina, classified according to their mode of occurrence—land rock and river rock. The land rock consists of so-called pebble rock, which is in fact a solid mass from which the calcium carbonate has been leached out and partly replaced by phosphate; thus cavities are left which connect and penetrate through the rock, giving it the appearance of being made up of separate pebbles. The river rock is so called because it is mined from the river channels. It consists essentially of water-rounded fragments of the land rock. The land rock runs about 58 per cent. tricalcium phosphate and the river rock about 55 per cent.

Until 1888 South Carolina enjoyed a monopoly of the phosphate industry of the United States. In that year Florida came forward as a phosphate producer, and in 1894 its production surpassed that of South Carolina. The rock occurs in three forms in Florida—hard rock, land pebble, and river pebble. The hard rock is essentially a bowlder deposit, although it is also found as a bedded deposit in situ. The land pebble consists of pebbles imbedded in sand and underlain by a stratum of tough, stiff, clayey material known as "bed rock." The river pebble, as its name implies, is found in the river beds. The hard rock carries from 78 per cent. to 80 per cent. tricalcium phosphate, the land pebble from 68 per cent. to 70 per cent., and the river pebble about 65 per cent.

In 1892 phosphate was discovered in Tennessee, and in 1899 this state went ahead of South Carolina in production. The Tennessee rock is of three classes—brown residual phosphate, blue or black bedded phosphate, and white phosphate. The brown rock is a residual deposit left by the leaching out from the original rock of the calcium carbonate,

leaving the phosphate. The blue rock is a bedded deposit, and the white rock is a cave deposit. All three classes vary in tricalcium phosphate content from 65 per cent. to 85 per cent.

In 1895 phosphate rock was discovered in Arkansas, but it was not until 1900 that any attempt was made to develop it. The rock carries from 25 per cent. to 73 per cent. tricalcium phosphate, and it has not yet been extensively worked.

Up to the present time the fertilizer industry of the country has depended upon the phosphate rock of the Southern states. Fertilizers made from this rock were at first used only in the South, but gradually the wornout farm lands of New England were given renewed life by the application of fertilizer made from the Southern phosphate, and now the entire country draws its supply from the same source. But the United States has not benefited alone. Vast quantities of the rock have been shipped to foreign countries, and the South furnishes an important part of the world's supply. From 1900 to 1908, of the total production of 14,214,747 tons, 6,560,724 tons, or over 46 per cent., was exported.

Since the beginning of the industry in 1867 the Southern states have produced 31,595,279 tons of phosphate rock having a value of $128,725,126. This covers only the value of the raw rock, and does not take into consideration the value of fertilizers made from it, for which figures are not now available.

MARKETED PRODUCTION OF PHOSPHATE ROCK IN SOUTHERN STATES, 1867–1908, IN LONG TONS.

	Quantity.	Value.
South Carolina	12,138,454	$54,211,153
Florida	14,087,833	56,527,946
Tennessee	5,315,422	17,797,857
Other States	53,570	178,170
Totals	31,595,279	$128,715,126

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THE PRODUCTION OF GOLD, SILVER, QUICKSILVER, COPPER, LEAD, AND ZINC IN THE SOUTH.

THREE metal-bearing regions may be recognized in the Southern states, each with distinctive characteristics. The first follows the Appalachian Mountains through parts of Maryland, Virginia, North Carolina, South Carolina, Tennessee, Georgia and Alabama; in its core of old schist, granite and gneiss are found the principal gold and copper deposits of the South, while on its western gentle folds of limestone, in Virginia, Kentucky and Tennessee there are smaller deposits of lead and zinc. The second region in the flat-lying limestones of the cen-

tral valley west of the Mississippi yields mainly lead and zinc and embraces southern Missouri with adjoining parts of Kansas, Arkansas and Oklahoma. The third region comprises the extreme western part of Texas and is really a part of the Cordilleran Mountain system; its mines yield silver and quicksilver. No metal production is recorded from Florida, Mississippi and Louisiana, where the older rocks are deeply covered by comparatively recent sediments.

Before the great mining regions of the Cordilleran states were discovered and developed, the South furnished almost the whole of the gold, silver, copper and lead mined in the United States. In the first half of the Nineteenth century the gold production of the Appalachian belt probably amounted to $34,000,000 and was a factor of no mean importance in the development of the nation. During the War of Secession mining operations were naturally restricted, yet lead mines were worked in Virginia and in Missouri, and the newly discovered copper mines of Ducktown in Tennessee were in operation, both metals being necessary munitions of war. After the establishment of peace, gold mining was resumed and has continued to the present day, on the whole, however, with a declining tendency, and its economic influence has not been marked of late years. The copper mining industry of Tennessee, on the other hand, after a long struggle under discouraging circumstances, leaped into renewed prominence about 1893 and has since steadily increased, and in 1907 and 1908 reached an annual production of 20,000,000 pounds. Its establishment bears decidedly upon the economic progress of the South. In Missouri lead mining was carried on with great vigor after the war and gradually attained national importance; at present one-third of the lead produced in the United

States is obtained from that state. About 1872 zinc ores began to be mined in Missouri, and in this case also the deposits were found to be of great magnitude. The industry has developed side by side with the lead mining and at present this State yields more than one-half of the output of zinc in the United States. The importance of these metals to Missouri can scarcely be overestimated. During the last two or three decades silver and quicksilver have been mined on a considerable scale in western Texas, but the distance of this region from centres of population, has rendered its metallic production of less influence upon the general culture of the South.

Gold.—Since the discovery of gold in the Southern Appalachian states in 1799, up to 1908 inclusive, the production is estimated as follows:

North Carolina	$22,743,728
Georgia	17,508,518
South Carolina	4,952,877
Virginia	3,286,034
Alabama	622,730
Tennessee	184,822
Maryland	71,506
Total	$49,370,215

The larger part of this total was extracted from the rich placer mines during the first half of the Nineteenth century. Accurate records are not obtainable for the first twelve years after the war, but from 1877 to 1908 the total output has been $11,500,000, fairly equally divided between North Carolina, South Carolina and Georgia. During the last few years Alabama has been added to the states of notable output. Virginia, Tennessee, sometimes also Maryland, contribute smaller amounts. For the last thirty-two years the gold production of the Southern states has averaged $360,000 per annum.

The placer deposits have gradually become exhausted. Efforts have lately been made to work the

river gravels by modern dredges; but the lode mines have for many years furnished the main production. In North Carolina the present production centres in Davidson and Montgomery counties, but the productive belts spread over a wide area. In South Carolina the production since 1890 has been mainly confined to the Haile gold mine. In Georgia, the celebrated districts of Dahlonega and Cherokee still yield the greater part of the gold. In Alabama the Hog Mountain mine has been producing since 1904.

In the development of the western mining regions, the miner from the South has played no small part, for at a time when the simplest metallurgical lore was rarely found among the pioneers, his acquaintance with the rocker, the sluice, or the homely stamp mill proved of the greatest value.

The Southern gold ores are often difficult to treat and many able men have attempted to solve the problems connected with their reduction. About twenty years ago the chlorination process was skillfully adapted to the low grade ores of the Haile gold mine by the veteran metallurgist, Captain Adolph Thies; and others, like Mr. T. H. Aldrich, Jr., of Alabama, are now successfully applying the cyanide process to southern ores.

Silver.—In the Appalachian states few silver mines are found and none are now worked for this metal alone. An insignificant amount of silver is annually obtained from the gold mines, but during the last ten years a larger quantity has been recovered by electrolytic refining of Tennessee copper and also, to some extent, from the copper won in North Carolina. The production from these two states during the last few years has rarely exceeded 100,000 fine ounces, corresponding to a value of about $60,000. The lead ores of southeastern Missouri and Kentucky contain a slight amount of silver and of

HYDRAULIC MINING NEAR DALLAS, TEXAS.

late from 20,000 to 50,000 ounces per annum have been recovered from this source. The most important silver producing region is that of western Texas, where several of the ranges are known to contain silver deposits. The Shafter mine, situated in Presidio county, has been producing silver since 1886 in increasing amount, the present annual production amounting to about 400,000 fine ounces. For the reduction of the ores the process of pan-amalgamation is employed. The yield for the last twenty-three years is about 10,000,000 fine ounces. Considering the fluctuation in the value of silver this corresponds to about $7,000,000.

Quicksilver.—For many years California has been the only state producing quicksilver on a large scale; the metal was considered as entirely foreign to the mining districts of the South when in 1894 the discovery of cinnabar—the principal ore of quicksilver was announced from the deserts of western Texas, at Terlingua in Brewster county. Production soon began and since 1900 the district has yielded 37,000 flasks, equivalent to about 2,800,000 pounds of the fluid metal valued at approximately $1,700,000. The greatest production was attained in 1902 when 5,300 flasks were obtained, and since then, owing to unfavorable trade conditions the yield has declined somewhat. The establishment of silver and quicksilver mining as important industries has served to attract attention to this remote region; prospecting operations have been stimulated and the discovery of other deposits is no unlikely event.

Copper.—Copper is widely distributed in the Appalachian states and production is recorded since 1865 in Maryland, Virginia, North Carolina, South Carolina, Tennessee, Georgia and Alabama. Some copper has also been mined in Missouri and western Texas, but in few places has the yield been large.

Among the more important localities are the Virginia district in Virginia and North Carolina and the Union mine in the latter state. Overshadowing all others are the great copper mines of Ducktown in eastern Tennessee. Wonderfully rich deposits of black copper sulphide were discovered about 1850 and worked up to 1879. The mines were idle for ten years, to 1889. Since then successful smelting processes have been devised for the poor, hard sulphide ores which were found underneath the rich black ores, and the production by two strong companies has steadily increased until, in 1908 it nearly reached 20,000,000 pounds. From 1890 to 1908 inclusive the production of the Ducktown mines has been 150,000,000 pounds, approximately corresponding to a value of $20,000,000. Denudation of forest and damage of remaining vegetation by acid fumes marked the earlier years of mining at Ducktown, but in recent years little wood is used for fuel and the poisonous sulphur fumes are condensed into sulphuric acid, urgently needed in the Southern states for the preparation of fertilizers from phosphate rock. Through waste and destruction the road has led to an intelligent utilization and conservation of natural resources.

Lead and Zinc.—As these two metals generally keep close company it will be best to discuss them together. Lead was formerly mined at several places in the old schistose rocks of Virginia, North Carolina and South Carolina; but at the present time the only districts of importance in the Appalachian region are those in the limestone of southwestern Virginia and eastern Tennessee. Deposits of lead and zinc are especially abundant in the valley of the Mississippi; some are found in western and central Kentucky, and a great number are scattered in northern and southwestern Arkansas and in the

central part of Missouri; in all these places the production has, however, been small. In northeastern Oklahoma not far from Missouri a rapidly growing mining industry of no small proportions has recently been started. The metallic lead and zinc won there attained in 1908 the values of $150,000 and $426,000. But even this important district is completely eclipsed by the resources of southwestern and southeastern Missouri, the former known as the Joplin zinc-lead district, and the latter as the "disseminated lead region." Together they produced, in 1907, metallic lead and zinc to the enormous value of $28,000,000, and, after a temporary setback in 1908, the yield of 1909 bids fair to exceed that of 1907. Ores of lead and zinc were found together at Joplin, but for many years only the former were utilized. Of late the production of lead at Joplin has declined and the output of zinc has rapidly increased. Much the greater part of the lead is now obtained in the southeastern district on the flank of the St. Francis Mountain. For many years the output increased very slowly, but about 1901 the deposits were acquired by strong interests and the production of the state rose rapidly, attaining 102,500 tons of lead in 1905 and 123,000 tons in 1907. The total value of the lead produced in Missouri is probably about $200,000,000. The zinc production from the Joplin mines began in the early seventies, but for many years the increase was slow. In 1890 somewhat less than 50,000 tons were obtained. About 1898 the revival of the industries created a great demand for the metal and the production responded promptly until the annual production of the region now (1909) is probably about 120,000 tons of metallic zinc. The total value of the zinc production of Missouri is probably about $200,000,000. While the zinc ore is mined in Missouri, much the

larger part of it is smelted in adjoining states, particularly in Kansas where the supply of fuel, in form of natural gas, is more abundant. Much of the lead ore is also smelted outside of the limits of the state. Nevertheless the importance and value to the state of these deposits can scarcely be overestimated. When ore to the value of many million dollars is taken from the ground annually, the imprint of this industry on the people must be marked. More particularly is this the case in the Joplin district where the prevailing conditions of leasing of mineral land has developed a class of small but independent mine operators. Affluence is in the reach of every enterprising miner and the stimulus of this possibility is reflected in the mental traits of the population. On the other hand, less favorable conditions, from the viewpoint of general progress are found in the southeastern region where large properties simply employ a great number of men as laborers.

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IRON AND MANGANESE IN THE SOUTH.

Iron ores are found widely distributed through the Southern states from Virginia on the northeast to Texas on the southwest. All the different varieties occur—hematite, brown ore, magnetite, and iron carbonate. Most abundant and of greatest commercial importance are the Clinton hematite ores, which extend throughout the western part of the Appalachian region from Virginia to Alabama. They occur sparingly in the northern part, being found at a few localities in northeastern West Virginia, and in western and southwestern Virginia and northern Tennessee. In the Chattanooga district, embracing southern Tennessee, northwestern Georgia and northeastern Alabama, they become very important, but they reach their maximum development in the Birmingham district in north-central Alabama, where several millions of tons of this ore are mined annually.

The Clinton hematite ores occur as beds and lenses interstratified with shale and sandstone. The beds vary in thickness up to thirty-five or forty feet and, where well developed, continue along the strike of the rocks for many miles. Sometimes several beds run along parallel to each other. The ores are of two varieties, soft and hard. The soft ores occur near the outcrop and grade into the hard ores at varying depths. The soft ores are of considerably higher grade than the hard ores, but the latter have the advantage of containing so much lime that they are frequently self-fluxing.

Next to the Clinton hematite in importance are the so-called "mountain and valley" brown ores. These are distributed along the eastern border of the Appalachian belt through the same longitudinal extent that the Clinton ores occur in. They are most

abundant along the Blue Ridge and in the New River region in Virginia, in Shady Valley and southward in Tennessee and adjacent parts of North Carolina, in the Cartersville, Rome, and Cedartown districts in Georgia, and in the Rock Run, Ironaton, and Woodstock districts in Alabama.

These ores were the basis of some of the first iron ore developments in the South, but they have gradually become of minor importance because of the disseminated nature of the deposits and the labor attendant to their concentration. The ores occur for the most part as large masses or disseminated fragments in residual clay and sand. They are generally mined with steam shovels and then concentrated by washing and screening. The resulting product is a low-grade concentrate which is usually mixed with hematite in the blast furnaces.

Third in importance are the Oriskany brown ores of western Virginia and eastern West Virginia. These ores occur as replacements along the outcrops of a certain limestone formation known as the Helderberg or Lewistown limestone. They have been known to extend continuously along the outcrop for half a mile or more with a width varying up to seventy-five feet. Generally, however, they are discontinuous and occur only at irregular intervals. They extend to a depth varying between 300 and 600 feet. The principal deposits which are being operated at present are in the vicinity of Clifton Forge, Virginia.

Of nearly equal importance with the Oriskany ores are the brown ores of western Tennessee and Kentucky and northwestern Alabama. These are disseminated through residual sand and clay overlying Carboniferous limestone and are very similar to the valley brown ores of the Appalachian region. Single deposits vary in size up to half a million tons or

more and may reach a depth of 120 feet. Their longitudinal extent, however, is always much greater than the vertical extent. Ores of this type are being mined at present in the Russellville district in Alabama and at Nunnelly and southward in Tennessee.

Similar in their occurrence to the above, but at present very unimportant commercially, are the brown ores of the Ozark region in Missouri and northern Arkansas.

In northeastern Texas there are extensive deposits of brown ore which, though yet but little developed, are destined to become very important commercially. They occur in horizontal beds extending over a large territory. Some beds consist of solid ore one to three feet thick, while others are composed of aggregates of ore nodules. The associated rocks are unconsolidated sands, clays, and greensands. The ore beds are locally at the surface and elsewhere covered by six feet or more of rock and soil. At the present time only three or four operations are being carried on in the district.

The remaining types of iron ore deposits in the South are of minor importance. Siliceous specular hematite occurs interbedded with Cambrian quartzite, schist, and slate in the eastern part of the Appalachian Valley, locally in Virginia, Georgia, and Alabama. Magnetite, specular hematite, and brown ore of the gossan type are found in the old metamorphosed rocks of the Piedmont region from Virginia to Georgia. In Missouri specular hematite deposits are found in the porphyry areas of Iron Mountain and Pilot Knob and in the Cambrian sandstones in the central part of the state. In Llano county, Texas, small bodies of magnetite occur in old gneisses and schists. Bedded iron carbonate occurs in the Coal Measures in eastern Kentucky and in West Virginia.

In the decade 1840-50 a profound revolution took place in the iron industry of the United States. This was the general substitution in the larger iron-making centres of coke for the charcoal previously employed. In the South, however, the change came more slowly than elsewhere and previous to the war only one furnace south of the Potomac used coke. This furnace was located at Chattanooga and was in blast only a short time after its completion in 1860, its total production being about 500 tons of pig iron. There were, on the other hand, upwards of 150 charcoal furnaces, widely scattered through the South, employing the primitive equipment which characterized the industry in its pioneer stage. There were also many even more primitive bloomeries and forges which produced wrought iron chiefly for supplying local needs.

A few of these charcoal furnaces were in operation in 1865, but by far the larger number had entirely ceased operations and most of them were in ruins.

The beginning of the modern iron industry in the South dates from the building of the Rockwood furnace in 1867. It is noteworthy that the leading spirits in this enterprise were General J. T. Wilder and Captain H. S. Chamberlain, who had been impressed by the exceptionally favorable conditions for iron making during their campaigns in East Tennessee. These conditions are the unusual proximity of high grade iron ore and excellent coking coal, which characterizes a narrow belt from the Virginia line southwestward to central Alabama.

In 1876 the first coke furnace in Alabama was built at Oxmoor, followed in 1879 by one at Birmingham. These pioneers demonstrated the possibilities for iron making at remarkably low cost, and during the decade 1880-90 furnace construction was active in

TEEMING A HEAT IN THE OPEN HEARTH DEPARTMENT—SHOWING THE 100-TON LADLE USED.

the Appalachian Valley belt through Virginia, Tennessee, Georgia, and Alabama. While the greater part of the production in this period came from coke furnaces the conditions which had favored the small charcoal furnaces generally throughout the country at an earlier date continued in the Southern states after they had entirely disappeared elsewhere. Charcoal furnaces, therefore, continued to be built and operated, though in decreasing numbers. They were, for the most part, located with reference to the smelting of the widely disseminated brown limonite ores through the Appalachian region and in the Mississippi Valley where timber remained in abundance. A few of these are still in operation, chiefly by reason of the grade of iron produced which is adapted to certain special purposes, such as the making of car wheels. The coke furnaces, on the other hand, were located either with reference to the more permanent deposits of hematite and Oriskany limonite ores or to favorable points for transportation of raw materials and products. The tendency therefore has been since 1880 toward the concentration of the iron industry in a relatively few favorable localities. At the present the Southern iron industry is localized as follows:

A group of furnaces with twenty-six stacks extends from about the latitude of Washington southwestward to Johnson City, Tennessee. This group lies in the Appalachian Valley, chiefly in Virginia, between the Blue Ridge and Cumberland plateau, drawing its ore supply from the deposits of brown limonite in the immediate vicinity, supplemented to some extent by hematite and magnetite from the older rocks to the east of the valley, and its fuel from the great beds of coking coal immediately to the west. The principal iron ores supplying these furnaces are the Oriskany brown ores of Alleghany

county and vicinity, and the mountain and valley ores of the New River region. In the first locality seven or eight mines were active in 1908; in the second, twenty-four mines were active. Smaller amounts of ore are obtained from a few brown ore mines along the Blue Ridge, from the specular hematite mines northeast of Roanoke and from Clinton fossil hematite beds in western Virginia.

The great Alleghany bituminous coal belt is parallel with and just west of the Appalachian iron ore belt. It extends from western Pennsylvania and eastern Ohio southwestward through the entire length of West Virginia and thence into Kentucky, Tennessee, and Alabama. All the railroads bringing coal eastward from this belt pass through or within a short distance from the principal iron ore fields and blast furnaces.

The second group extends from Big Stone Gap, Virginia, southwestward through Tennessee and Georgia to the Birmingham district in Alabama. It contains sixty-one stacks, of which one-third are in the Birmingham district. These furnaces depend for their ore supply chiefly on the red hematite deposits which have determined their location, but since this is generally calcareous, a certain proportion of brown limonite or gray hematite is added from deposits of these ores which occur at many places in the southern portion of the Appalachian Valley. Their fuel comes from the coal fields lying immediately adjacent to the red hematite deposits.

A third group of furnaces, containing nineteen stacks, occupies a belt lying east of the Tennessee River and extending from northern Alabama through Tennessee and Kentucky. The ore used is practically all derived from the local deposits of brown limonite, and the fuel is in part from the Alabama coal fields and in part charcoal.

CHARGING AN OPEN HEARTH FURNACE WITH BESSEMERIZED IRON.

West of the Mississippi the iron industry is confined to small proportions, two furnaces in eastern Missouri and two in northeastern Texas. Although the aggregate tonnage of available iron ore in these states is large, it is so widely disseminated that its development is attended by serious economic difficulties.

It will be noted that the present total number of blast furnaces in the Southern states is considerably smaller than the number operating in the decade preceding the war, although the production of pig iron is enormously increased. Indeed, many of the larger modern furnaces have an individual production in excess of the total production of all Southern furnaces in the ante-bellum period. The South Atlantic Coastal Plain, which was once relatively important in iron production, now contains not a single furnace except at Baltimore, where foreign ore is used exclusively.

In 1854 the South produced 12 per cent. of the total iron output of the entire country. In 1865 the production had practically disappeared. In 1880 it had reached 6 per cent. of the total, and in 1896 was 19 per cent. From this maximum the percentage of southern production has steadily declined until it is now less than ten.

A very large proportion of the Southern iron ores contain phosphorus above the Bessemer limit and the product of the furnaces was for a long time and still is, to a large extent, suited only for foundry purposes. Hence, the manufacture of cast iron pipe has assumed large proportions, while the steel industry, dependent on the development of the basic open hearth process, has been of comparatively slow and recent growth. For many years the product marketed consisted almost entirely of pig iron which was shipped elsewhere for manufacture. Within two

years the steel making capacity of the South has been more than doubled and an increasing proportion of the furnace output is being worked up on the spot, both in the manufacture of steel and other high grade products. This is essential for any lasting benefit to the region furnishing the raw materials on which the iron industry is based.

Most of the important manganese deposits in the eastern half of the United States occur in the South and nearly 95 per cent. of the total quantity of domestic manganese ore produced was mined here. The principal deposits are in the Lynchburg region and along the west slope of the Blue Ridge in Virginia, at several localities in northeastern Tennessee, in the Cartersville and Cave Spring districts in Georgia, and in the Batesville district in Arkansas. About half of the total ore mined has come from the Blue Ridge region in Virginia, which is at present the only producing district in eastern United States.

The manganese ores of the Appalachian region from Virginia to Georgia are co-extensive with the mountain and valley brown iron ores which they resemble closely in their occurrence. They are found in masses and fragments of varying size disseminated through residual clay and sand and do not extend to a great depth. The Arkansas manganese ores occur along a definite stratigraphic horizon. Some of the deposits are in regular beds, while in others ore fragments are scattered through sand and clay.

Although the largest deposits of manganese ores in the United States occur in Virginia, Georgia, and Arkansas, these ores have never been utilized in the South, but are mined and shipped to steel making centers in the North. The ores come in competition with foreign ores and the manganese mining indus-

try has steadily declined for a number of years. The more easily accessible deposits are so far exhausted that the production will probably never reach its former proportions.

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THE PRODUCTION OF CERTAIN OF THE NON-METALLIC MINERALS IN THE SOUTH SINCE 1865.

There are a number of the non-metallic minerals that have played an important part in the commercial history of the South, and certain of the Southern states now have such a reputation that if a commercial demand arises for a certain mineral that has formerly been considered rare in its occurrence, prospecting is at once begun for it in certain of these states. Among the minerals once considered rare in their occurrence, but which upon a demand arising for them in the arts have been found in commercial quantity in one or more of the Southern states are: corundum, monazite, zircon, gadolinite, and bauxite. There are several more of the non-metallic minerals that are closely connected with the economic history of the South, principally mica, salt and sulphur, but only mica will be considered in this paper.

The first series of minerals mentioned are perhaps the most important, as their production for commercial purposes in the United States has been confined, up to the present time, entirely to the Southern states, and the industries for which they were produced have been entirely dependent on these deposits for their raw material.

Zircon.—The mineral zircon has been known to be rather widely distributed in its occurrence, but it was only upon the commercial demand arising for it that it was discovered to occur in commercial quantity. Zirconia (ZrO_2) was desired by the manufacturers of a mantle for incandescent lamps, and prospectors soon located a commercial deposit of this mineral in Henderson county, North Carolina.

This was later developed largely through the efforts of Mr. W. E. Hidden, as the Jones Mine, located near Zirconia, a station on the Southern Railroad. Though zircon was first discovered here in 1869, the first shipment was not made until 1888.* Although the shipments of zircon from this locality were never very large, yet they supplied the necessary material for use in the manufacture of the mantles for incandescent lights. Experiments regarding the most suitable material for the manufacture of these mantles were continued in the laboratories of the different companies, and in a few years it was discovered that thoria made a better mantle than zirconia, and therefore the demand for zircon began to decrease, until finally its production entirely ceased. A new use, however, arose for zirconia—to be used in the manufacture of the glower of the Nernst electric lamp, and in 1901, mining for zircon on a small scale was again commenced at the Jones Mine and it is still being produced in small amounts each year.

There is also used in the manufacture of the glower for the Nernst lamp, yttria, which is found in some quantity in the mineral gadolinite. This is another rare mineral, but the commercial demand for it has been met by its discovery in quantity near Llano, Llano county, Texas. Mining for this mineral was begun in 1901, and has continued to the present time, although the actual production is small. The total quantity of zirconia and yttria used in the manufacture of these lamps is small so that the output of the minerals is consequently very limited.

Monazite.—The discovery that thoria would make a much better incandescent mantle for lighting purposes than zirconia made it necessary to discover commercial deposits of some mineral containing a

American Journal of Science, Third Series, Vol. XXXVI, p. 73, 1888 (Article by Hidden).

considerable percentage of this compound. The mineral that offered the best chance of furnishing this salt was monazite, and prospecting was carried on quite vigorously for it, but chiefly in North Carolina, with the result that it was found in considerable quantity in that state. Mr. W. E. Hidden in 1879 first proved the existence of monazite in quantity. Since the first discovery of a commercial quantity of monazite in North Carolina, areas containing the mineral in quantity have been very largely extended not only in this state, but also in South Carolina, and these two states are still the only producers of this mineral in the United States. The first shipment of monazite was in 1887,* but it was not until 1893 that the shipments were on a commercial basis. The production has been continued every year since as shown in the following table:

PRODUCTION OF MONAZITE IN THE SOUTH (1887-1907).

Monazite.			Monazite.		
Year.	Pounds.	Value.	Year.	Pounds.	Value.
1887	24,000	$6,000	1898	250,776	$13,542
1888 to 1892	several tons each year.	experimental work.	1899	350,000	20,000
			1900	908,000	48,805
			1901	748,736	59,262
			1902	802,000	64,160
1893	130,000	7,600	1903	862,000	64,630
1894	546,855	36,193	1904	745,999 (a)	85,038
1895	1,573,000	137,050	1905	1,352,418 (b)	163,908
1896	30,000	1,500	1906	846,175	152,312
1897	44,000	1,980	1907	547,948	65,756

a. Includes small production of Zircon, Gadolinite and Columbite.
b. Includes small production of Zircon and Columbite.

With the production, however, of monazite in Brazil, in 1895, there immediately arose a strong competition between that country and North Carolina for the German trade, with the result that the North Carolina monazite could not be sold at the low figures of the Brazilian product, and consequently in 1896 and 1897 there was a large falling off in its

*North Carolina Geological Survey, Bull. 9, P. 36, 1895 (Article by Nitze).

production. As the price of the Brazilian monazite advanced, the American mineral was again able to be sold in competition, and in 1898 there was again a fair production of this mineral in the South, and it has continued to increase. In 1907 the production was very materially effected by the cheap price of thoria nitrate imported from Germany.

Monazite also furnishes ceria (CeO), another salt that is used in very small amounts in the manufacture of certain incandescent mantles, and is also used by pharmacists.

Bauxite.—Another mineral that has played an important part in the economic history of this country is bauxite, a hydrated aluminum oxide which came in demand in 1872 * as a source of the metal aluminum, the first deposit that was worked being at Baux in Southern France. Although prospectors have looked for this mineral in many sections of this country, it has thus far been mined only in the Southern states of Georgia, Alabama and Arkansas. Georgia was the first state to produce this mineral, the first shipment being made in 1889 to the Pennsylvania Salt Company, of Natrona, Pennsylvania. This was followed in 1891 by a production from the Alabama deposits, † and later in 1900, ‡ by shipments from the Arkansas deposits. Each of these states has since continued the shipment of this mineral. In 1900, § another use arose for bauxite, which was in the manufacture of an artificial corundum, thus increasing the demand for it.

Corundum.—Of all the natural abrasive materials corundum is by far the best. The first deposits of corundum (not including the emery variety) to be mined in the world were those in North Carolina, ‖

* Ga. Geolog. Survey Bull. 11, p. 14, 1904 (article by Watson).
† Ibid., p. 25.
‡ N. S. Geolog. Survey, 21 Ann. Rpt. Part III, p. 442, 1901 (article by Hayes).
§ N. S. Geolog. Survey, Min. Rec., 1901, p. 808 (article by Pratt).
‖ N. C. Geolog. Survey, Vol. 1, p. 361, 1905 (article by Pratt & Lewis).

in 1871, followed in 1872, by the opening of the mines in Georgia. * The two mines that have made the South famous for its corundum are the Corundum Hill Mine, at Cullasaja, Macon county, North Carolina, and the Laurel Creek Mine, at Pine Mountain, Rabun county, Georgia. These two localities continued to furnish the world's supply of corundum (except emery) until 1893. The corundum from the latter mine is still known as standard corundum, and is considered the best corundum ever marketed. There has been no production of corundum from the Southern states since 1904. The credit for the development of the corundum mines in North Carolina and Georgia which resulted in the building up of the corundum industry in this country, is due principally to Col. C. W. Jenks and to Dr. H. S. Lucas, the former having begun the work at the Corundum Hill Mine in 1871.

Mica.—The first mica mining in the South was very evidently done by the Indians, as old underground workings have been encountered, in some of which Indian implements have been found. The rediscovery of these old mines is due to Hon. Thomas L. Clingman of Asheville. The mining of mica for commercial purposes was first commenced in 1868, † in North Carolina, and the mica obtained was superior to any mica that had ever been marketed, and immediately became the standard mica by which other micas were judged. Since that date mica mining has been carried on in Virginia, North Carolina, South Carolina and Alabama, but with considerable variation in the production of the mineral. About 1885 there began the importation of mica (duty free) from India and a little later from Canada. This at once affected the Southern production, which con-

*Ibid., p. 361, ed. Ga. Geolog. Survey, Bull. 2, p. 77, 1894 (article by Spencer).
†N. S. Geolog. Survey, Min. Res. 1883, p. 835, and 1887, p. 661 (article by Phillips).

tinued to decrease until the McKinley tariff bill, which placed a duty on mica, became effective in 1892-93. Up to this time there was no use made of the scrap mica nor of the small sheets, and it was not until about 1890 that a demand arose for the small sheets and punched mica for electrical apparatus. This demand for the waste mica, together with the duty, caused a revival of the mica industry of the South. A use was also found for scrap mica in the manufacture of axle grease, wall paper, etc., which added greatly to the income of the mica mining and greatly increased the production of the Southern mines. There has always been a strong competition between the Southern and the imported mica, but the Southern mica was always able to easily compete with the foreign when there was a large demand for it for stoves. But with the smaller demand for this purpose and a much larger demand for use in electrical purposes, for which the foreign mica gives equal satisfaction with the Southern mica, the competition has been greater, and often to the disadvantage of the Southern mica.

Precious Stones.—The production of precious stones has never been very large in the Southern states, but these states have produced some of the most unique and exquisite gems that have been found in the United States. Two of these gems, hiddenite and rhodolite were first identified in North Carolina, and thus far have not been found in any other state. The first* of these was discovered in 1879, at Hiddenite, Alexander county, and ranks near the diamond in price on account of its great rarity. The rhodolite was discovered in 1893 on Masons Branch of Cowee Creek† and has been quite extensively mined. North Carolina, Kentucky, and Arkansas

*Smith, J. Lawrence: *Amer. Jour. Sci.*, III, xxi, 128, 1881.
†Hidden and Pratt: *Amer. Jour. Sci.*, IV, Vol. V, 1898, 293.

have been favorite fields of exploration for the diamond as all three of these states contain a rock that is very similar to that in which the diamonds are found in South Africa. Diamonds * have been found in Virginia, North Carolina, South Carolina, and Georgia in placer mining, but none have thus far been found in place. Very recently (1906) diamonds have been found in Arkansas, and the locality seems to give promise of developing into a genuine deposit of these gems. The Southern states of Virginia, North Carolina, and Georgia have produced some of the finest amethysts that are on the market, and North Carolina has produced some of the most beautiful blue and golden beryls that have been found in the United States. Two other gems that have attracted a great deal of attention in the Southern states are the ruby and the sapphire. As has been stated above, corundum occurs quite abundantly in the Southern states, and in a great many of the mines blue and red corundum were discovered. This caused considerable interest in these deposits as a probable source of the ruby and the sapphire, and although in many of these mines a few sapphires and an occasional ruby were found, none of them produced any great amount of gem material. A ruby deposit, however, was discovered in 1893,† in Cowee Valley, Macon county, North Carolina, that has produced some remarkably fine rubies equal in color and luster to any of the Burma stones. Although these ruby deposits have been developed for a number of years and are still being worked, only a very small amount of material obtained has thus far found its way to the market.

Tin.—Although the production of tin in the Southern states has amounted to very little in the

*Pratt, Joseph Hyde: *Gems and Gem Mining in the South* (*The Southland*, Vol. I, Nos. 2, 3, 4 and 5, 1901, Asheville, 77, 6).

†Kunz, G. F.: U. S. Geol. Survey, *Min. Res.*, 1893.

way of tonnage, there has been a great deal of money spent in investigating the deposits of this metal in Virginia, North Carolina, South Carolina, Alabama, and Texas. In Virginia the tin area was first described in 1885.* It extends along the eastern edge of Rockridge county in the line of the Blue Ridge Mountains, and a few miles north of the James River Gap to about the north line of the county. One property, known as the Cash Mine, has been developed and 290 tons of rock were tested, yielding approximately 2,400 pounds of tin concentrates, which only averaged about 43 per cent. metallic tin. In North Carolina tin ore was discovered in 1883 near King's Mountain. The known tin deposits are in Lincoln, Gaston, and Cleveland counties, extending from Lincolnton southwest to the South Carolina line. The principal work has been done near Lincolnton, Lincoln county, Bessemer City, Gaston county, and near King's Mountain, Cleveland county. The first shipment of ore was from the Ledoux mine in 1888, and there has probably been shipped from the several deposits approximately twenty-five tons of concentrates. The South Carolina tin belt is a continuation of the North Carolina belt and extends from the North Carolina line southwesterly to Gaffney, Cherokee county. Tin was discovered in South Carolina in 1903, and practically the only development work for tin in that state is at the Ross Mine, near Gaffney. The total amount produced is approximately thirty-eight tons of concentrates. Tin has been found in Coosa county, Alabama, near Rockford, but no development work has been done on the deposit. The Texas deposits are on the flank of the Franklin Mountains, about ten miles north of El Paso. These deposits were discovered in 1899, and have been prospected to a depth of about fifty feet.

*Winslow, Arthur: *Eng. and Min. Jour.*, Nov. 7, 1885.

As far as known no ore in large amount has been shipped from these.

The total amount of tin produced does not probably amount to over forty tons of metallic tin. The most promising deposits for yielding a commercial quantity of tin ore are those in the vicinity of Lincolnton, North Carolina; Gaffney, South Carolina; and El Paso, Texas.

Platinum.—One of the first filaments that was used in incandescent electric bulbs was platinum. This made the cost of the bulbs excessive, and was also making a severe drain on the supply of platinum. A search was begun in many countries for this metal, and a very systematic one was made throughout a number of the Southern states. Grains of platinum have been reported to have been found in the sands from placer gold washings in Rutherford and Burke counties, North Carolina.* Mr. W. E. Hidden made a very thorough search for platinum at these reported localities but failed to discover any, and the present writer has examined very carefully many of the reported localities without having discovered any native platinum. This metal has also been reported from a number of localities in Georgia, but they are no more authentic than those of North Carolina. The Southern states of Virginia, North Carolina, Georgia, and Kentucky have always attracted considerable interest from those who have been searching for platinum, inasmuch as in those states are found large deposits of peridotite and its alteration product, serpentine, associated with which is more or less chromite. In many parts of the world where platinum has been found in alluvial deposits, it has been associated with chromite and serpentine. It has also been found directly associated with chromite, and as chromite originated in serpentine, or

*U. S. Geol. Survey, *Bulletin* 74, 1891, 14.

rather in the primary rock, peridotite, it would seem to indicate that the platinum originated from peridotite or an allied rock of igneous origin. Although no platinum has yet been found associated with these rocks in the South, it is not unreasonable to expect that some day it will be found.*

Platinum in the form of the arsenide ($PtAs_2$) and known as the mineral sperrylite has been found very sparingly in Macon county, North Carolina.†

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*Pratt and Lewis: N. C. Geol. Survey, I (1905), 373.
†Hidden and Pratt: *Am. Jour. Soc.*, IV, Vol. VI, 1898, 463–468.

MINOR MINERAL INDUSTRIES IN THE SOUTH.

Throughout the South are local industries of small production based upon the favorable quality or occurrence of some mineral substance which is widely used after more or less modification, and which is only indirectly associated with any other larger mining operation. Among such are the ochers and iron ores particularly suitable for use as mineral paints, barytes used for many purposes in the arts, sulphur, and fluorite.

The annual production of each of these comes largely if not entirely from the South and is worthy of at least a brief notice.

Mineral Paints.—Among the substances used for mineral paints which are employed in the manufacture of linoleum, oil cloth, fireproof paint, and for other purposes are red and brown hematite, and ferruginous clays. Since the peculiar properties rendering these substances serviceable for the purposes mentioned are usually the results of the disintegration which common substances have undergone, it is natural that they should be found relatively abundant in the South where the climatic conditions have facilitated the deep weathering of the underlying rocks. At certain points in Northwestern Georgia and Southeastern Tennessee the "soft" or weathered Clinton ore is too thin for profitable mining as an iron ore and so free from silica, alumina, and lime that it can be utilized as a "paint ore" in the manufacture of red and deep-brown metallic paint, or as a coloring matter for sand-lime brick. Certain of the ferruginous clays of the Coastal Plain, as at Bermuda Hundred, Virginia, and the residual clays of the Shenandoah Valley and the Blue Ridge in Vir-

ginia and Maryland, have been used for ocher and sienna, while local deposits in Missouri and some of the other states have been put to a similar use.

The statistics of production are incomplete prior to the Census of 1880, but such facts as are available show that these substances have been worked more or less regularly for several decades. The most important Southern source of *ocher* has been Georgia, which has produced annually an average of between 4,000 and 5,000 tons during the last twenty years. There was a serious decline in the production in the early nineties and an usually large production in 1900, but the average increase in annual production has been about 1,000 tons each decade. The state produced 6,035 tons valued at $63,851 in 1908. The value of the crude ore produced has likewise varied, the average price per ton for all grades fluctuating around the general value of $10 per ton. The high grade ocher produced at Bermuda Hundred, formerly extracted at the rate of 1,000 tons a year, was worth, according to quality, from $18 to $27 per ton. The chief Southern source of *metallic paint* has been Tennessee, the ore being mined near Ooltewah and ground at Chattanooga. The annual production during the decade of the nineties averaged about 4,000 tons, valued at somewhat less than $9 per ton.

Smaller operations, usually supplying only one or two paint mills, have been worked irregularly in Maryland, Virginia, Alabama, Missouri, and Kentucky.

Barytes.—This mineral, either in the natural or refined form, has long been used because of its peculiar properties. Its whiteness, permanency, and ability to absorb coloring matter combined with its opacity make it particularly serviceable as a paint or carrier of pigment. Its weight and relative cheapness, combined with its color, occasion its use

as an adulterant in white powders. It may also be used in refining sugar, enameling papers or cloths, in the manufacture of rubber goods and in the preparation of barium salts for the chemical arts. Four-fifths of the present production, according to Pratt, goes into pigments. The use of barytes for these purposes dates back at least to the first half of the last century. It is, moreover, an essentially Southern mineral since practically all of the production is from Virginia, North Carolina, Tennessee, and Missouri.

The deposits in Virginia occur in six areas, situated in more than twenty counties, though recent operations have been limited to a few centres. The oldest workings, dating back to 1845, are found in Prince William county. A second centre of operations, beginning in 1874, extends along the Southern Railway south of Lynchburg between Evington and Sandy Level, especially in Pittsylvania county. The deposits in the southwestern part of the state were worked in Smyth county from 1877 to 1885 and in Russell and Tazewell counties since the latter date.

The deposits in the Carolinas are in Madison and Gaston counties, North Carolina, and the adjoining area of South Carolina; those of Georgia near Cartersville, Bartow county; those of Tennessee in Bradley, Monroe, Loudon, Cocke, and Greene counties, and those of Kentucky in Fayette, Boyle, Lincoln, and Garrard counties. Missouri is, however, the chief source of barytes, the deposits worked occurring in Washington, Crawford, Cole, and Miller counties.

The barytes industry for the entire South shows a very irregular but marked development during the twenty-five years for which statistics are known, although the annual production in the individual states, with the exception of Missouri, show wide fluctuations. From 1885 to 1886 there was a marked

decline in the production of crude barytes from 30,240 to 11,200 tons. This was followed by a revival during the succeeding years to 1892 when the output reached 32,108 tons. A second decline occurred to a production of only 17,028 tons in 1896. From that year until 1900 there was an unprecedented rise in the annual production, reaching an output of 67,680 tons, which was not exceeded until 1907 when the figures show a gross tonnage of 89,621 tons valued at $291,777. During the period between 1900 and 1906 the annual variation was from 12,000 to 19,000 tons, the production averaging about 55,000 tons for the period. The prices per ton for the twenty-five years under discussion have shown variations from an average of $4.46 in 1885 and 1886, when the production was curtailed, to $2.23 in 1897. The range in prices on the whole has shown a steady decline from an average of nearly $4 in the eighties to $3 in the first years of the present century, rising with a decreased production and sinking as the output increased.

Sulphur.—The production of sulphur in the South is a matter of the last few years, although the presence of large deposits in Calcasieu Parish has been known for more than forty years. The history of the failures and ultimate success of the Louisiana sulphur industry is a striking illustration of the economic changes, often affecting an entire population, which may be brought about by the introduction of a new process in production. Prior to 1906 Sicily furnished practically all of the sulphur consumed in the world and governed the market. The native sulphur was quarried and mined by laborers at the minimum living wage under most primitive conditions—nearly a quarter of the entire exports coming to this country. The industrial and mining conditions of Louisiana offered little or no hope of successful com-

petition. In 1895 a partially successful device was developed by which the local sulphur could be won successfully in spite of the overlying quicksands. The device proposed had certain mechanical difficulties and the mines closed down with "no prospect of their reopening in the near future." *

As late as 1904 Pratt† mentioned the fact that a slight rise in the price of Sicilian sulphur changed the paper manufacturer's source of sulphur from the native mineral to the pyrite. It was, however, in this same year that Mr. Frasch finally succeeded in putting his appliances on a commercial basis and in making the shipment of the first cargo of American sulphur to Europe. The effect on the Sicilians was remarkable. Town councils passed resolutions demanding that the Italian Government should take action. Finally, to protect the impoverished miners of Sicily, the government was forced practically to finance the continuation of work with its heavy accumulation of surplus stock. In 1908 the American and Italian interests came to an understanding which maintains former prices and permits the disposal of Sicilian sulphur in the European markets. Since the sulphur bed has been proven to have an average thickness of 100 feet, and the deposit when brought to the surface is of exceptional purity, the conditions appear favorable to the continuance of the Louisiana industry.

Prior to the development of 1896 the total production of sulphur in the United States seldom exceeded 2,000 tons a year. Since 1900 when the production was only 3,147 tons there has been a phenomenal increase in production due almost entirely to the Louisiana operators. In 1905 the annual production was 181,677 tons, valued at $3,706,560, or sixty times

*Harris and Veatch, *Geology of Louisiana*, 127.
†*Mineral Resources of the United States* for 1903, 1073.

the output five years earlier. Even with such expansion the annual production doubled during the years 1905-08, the output in the latter year equalling 369,444 long tons valued at $6,668,215. The bulk of the great quantity comes from Louisiana with relatively insignificant amounts from Nevada, Utah, and Wyoming.

Fluorite is used in the metallurgy of iron, by the basic open-hearth process, by the blast furnace process, in the manufacture of ferro-silicon and ferro-manganese and in iron and brass foundries. It is also used in the manufacture of opalescent glass and enameled wares and by chemical manufacturers. The value of the mineral varies widely according to the amount of silica, lime, and zinc which it contains. Most of the production at the present time comes from Illinois, Kentucky, and Colorado. The total production has increased slowly from 4,000 to 5,000 tons in the eighties to 6,000 or 7,000 tons in the nineties. Since 1898 there has been, however, a rapid increase from less than 16,000 tons to nearly 50,000 tons in 1907.

The fluorite industry of Kentucky, which is centered in Caldwell, Crittenden, and Livingstone counties, belongs to this latest period, the first commercial product reported from the region being in 1896. The inception of the industry in Kentucky was fortunately timed by coincidence with a return of prosperity following several years of depression. During the first year 1,500 tons was produced, and amount which was trebled two years later. The annual production increased steadily to a maximum of 30,835 tons, valued at $153,960 in 1903, since which time there has been an irregular decline to the low production of 6,323 short tons in 1908.

The production of salt in the South since the war has been the basis of an industry in four general

areas: West Virginia along the Kanawha and Ohio, southwestern Virginia along the Holston, Louisiana and Texas along the Gulf, and northern Louisiana, with contiguous areas in Texas and Oklahoma. The history of the industry during the same period has been marked by five epochs: the movement from the Kanawha to the Ohio in West Virginia in the seventies and eighties; the unsuccessful efforts in the Petite Anse district of Louisiana with the repressive competition of Kansas salt during the same period; the discovery of new deposits on Côte Carline with the revival of salt industry in lower Louisiana in 1895-1897; the restriction of the output to chemical industries in Virginia in 1903; and the expansion of area of operation and production of the Louisiana and Texan district during the last few years. The more salient features of the post-bellum period in the different states are noted in the following paragraphs:

Virginia.—Although this state was one of the earliest of the salt-producing states in the South, and of much importance during the war, no salt is placed on the market at the present time, all of the material being used in the manufacture of chemicals.

The works are situated at Saltville in the Holston Valley where rock salt was found as early as 1840. Watson reports twenty-four producing wells, varying in depth to 2,380 feet. No attempt is made here to mine the salt, the material being obtained by leaching the deeply lying saliferous beds and evaporating the brine. The last operations in the manufacture and marketing of salt as such was in 1903.

West Virginia.—The manufacture of salt in what is now West Virginia dates from the utilization of the natural brines by the Indians. The development of the industry from the boring of the first salt well in 1806 to the close of the war is given elsewhere

in this series. According to J. P. Hale, one of the early salt manufacturers, as quoted by Grimsley, there were about 120 salt wells and ten furnaces, with an aggregate capacity of 2,500,000 bushels per year, in the Kanawha salt district in 1875. All of the works situated in the Kanawha valley, with a single exception, have now disappeared because of the low price of salt and the finding of richer brines farther North. The chief production at present comes from Mason City and Hartford on the Ohio River.

The statistics of production from 1875 to 1883 appear to be lacking. From the latter date the output has ranged from a maximum of 575,000 barrels in 1904 to a minimum of 156,147 barrels in 1907, with an average of about 250,000 barrels annually. During this period West Virginia has fallen in rank from four to nine in the producing states of the Union.

With the salt industry of West Virginia is closely associated that of extracting bromine from the brines.

Louisiana.—The salt deposits, rivalling in quantity the great deposits of Europe and India, which occur in numerous isolated areas along the Gulf coast and in northern Louisiana, have been worked intermittently from the time of the Spanish explorers to the present. At first the process consisted in simply evaporating the natural brines. This continued until the discovery of beds of rock salt in 1862. As described elsewhere in this series, the work of development was stopped soon after its discovery by the capture of the works by the Federal forces. For a score of years subsequent to the war efforts made to establish an industry were unsuccessful on account of poor transportation facilities. These attempts were practically limited to Petite

Anse, the site of the original discovery. Transportation facilities were improved in 1880 by the cutting of canals giving waterway to the Gulf and in 1886 by the building of a railroad. At first the prospects appeared bright, but trouble with quicksands and flooding of the mine have been deterrent factors in the development of the area. The successful appearance in the market of the Kansas salt still further delayed the work in Louisiana until 1895, when the discovery of salt beds on Côte Carline stimulated the lagging interests and occasioned an exploration of the entire region. During this period additional deposits of rock salt were located on Belle Isle in 1896 and Grand Côte or Weeks Island in 1897.

Deposits similar to those of the " Five Islands " just described, occur in Northern Louisiana where they have long been known and frequented for their natural brines. On account of the oil associated with these deposits, the areas have been extensively prospected during the last few years and many new deposits of salt, "hundreds if not thousands of feet in thickness," have been discovered, many of which are not yet developed. Their exploration has, however, caused a further expansion of the industry which occurred in 1904, when the production over the preceding year was increased from 568,936 to 1,095,850 short tons. This latter rate of production has been maintained during the succeeding years and will doubtless continue, as it is estimated that the salt deposit actually located at Petite Anse alone amounts to 2,000,000,000 tons. Professor Harris in his recent report states that "no one can claim to have but the faintest idea of the true value of the huge masses of pure rock salt stored away beneath the 'islands' and salines of Louisiana."

Texas.—Similar remarks might be made regarding the recently located similar saline deposits of

Texas. The widespread investigations by drilling for oil from Sabine Pass southwestward have disclosed many bodies of salt which are as yet practically unutilized, while the known salines southeast of Dallas give promise of large yields. At present most of the production is from Grand Saline in Van Zandt county; Colorado in Mitchell county; Palestine in Anderson county, and Grand Falls in Crane county. The annual output averages somewhat less than 400,000 tons valued at something like $200,000, the price per ton for the state fluctuating widely from place to place and from year to year.

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MANUFACTURES.

MANUFACTURES IN THE SOUTH FROM 1865 TO 1880.

DISASTROUS as were the immediate material effects of the war upon Southern manufactures, and depressing as were the conditions they were obliged to meet during the reconstruction, there were hopeful elements in the situation. During this period the North had extended, perfected, and centralized its manufactures, partly under the stimulation of a high tariff and partly because the energies evoked by a great national crisis manifested themselves also in industrial fields. The tariff remained, not only inviting but almost compelling the impoverished planting states to make so far as possible the articles they consumed. Northern manufacturers called increasingly upon the South, not only for cotton and all her virgin wealth of raw materials, but also for iron and timber and the other half-finished products that fed the multiplying machinery of their factories. Military campaigns had brought about a great mixing of the people, and thousands of Northern observers had noted the industrial possibilities of the states they visited in war with a view to enterprises that follow peace. To such an influence, for instance, is directly traceable the larger development of the Chattanooga iron district. The emancipation of the negroes was accompanied by a widespread belief that the sole fundamental differences between the industrial and the

planting sections of the country was thereby removed, and perhaps by an over-sanguine expectation that Lowells and Pittsburghs would rise magically around every southern waterfall and coal mine. Moreover, the Southern people felt themselves in the throes of an economic revolution leading to a future of diversified industries. The old sentiment in favor of agriculture survived; but faith in it as the sole support of a nation was disappearing. The wealth and power which the North had derived from manufactures was better appreciated. The disappearance of slavery was followed by psychological results that may have been more important than material results in changing the course of the South's productive energy.

Railway building was the first symptom of a business revival in the Southern states, and even though fostered by the corrupt intrigues of Reconstruction politics, the added facilities for transportation thus provided brought immediate benefit. Some redistribution of population followed, with a growth in the size of towns, not unfavorable to manufactures. During the depression of commerce immediately following peace, especially at New Orleans, people were directed to industrial pursuits as a remedy for non-employment. The fact that the national government had survived successfully the stress of the war inspired added confidence abroad. German capital had been at hand to finance Northern industries even in the midst of conflict, and British money now flowed more freely into railway and mining enterprises. The impression prevailed that the South was a land of bargains; that ruined proprietors were sacrificing their estates; that vast natural resources had lain neglected during the easy-going days of slavery. Cotton was bringing an abnormally high price in face of previous deficits and present low production. In a word the former slave states were a focus of in-

dustrial as well as political interest, and though until the Reconstruction was over unsettled social and political conditions hampered all enterprises, this was a germinal period for manufactures.

Homespun industries, revived during the privations of the war, continued to supply the consumption of the poorer whites for ten or fifteen years thereafter. In 1870 an English traveler noted that small cotton farmers not only ginned, but also spun and wove a portion of their crops. The stream of immigrants that about 1873 flowed from the older cotton states to Texas was almost without exception clothed in blue and butternut homespun. In 1876 an official report in Tennessee comments upon the temporary decline in household spinning and weaving, due to the prosperity of peanut farming, which employed the time of the women in the fields. As recently as 1892 the farmers of the Virginia mountain counties manufactured the flax linens they commonly used. It required more than a full century after the introduction of Arkwright's machinery in America for the fabrics of the factory to replace completely the fabrics of the household.

No appreciable break occurred in the continuity of cotton manufactures in the South, in spite of the mills destroyed or closed by the war. Before 1870 several of the ruined factories had been rebuilt, and long prior to that others had resumed operations. Graniteville and Vaucluse largely escaped the ravages of the raiders and suffered little interruption. Within a year after peace, the Kalmia factory was projected in that vicinity, and the Manassas factory was organized in Mississippi, both intended to be larger than the mills previously erected in the cotton states. Two years after General Wilson burned the mills at Columbus, Georgia, two had been rebuilt and were making cloth. In 1868, three years after

the surrender, there were sixty-nine mills, with approximately 200,000 spindles, in operation south of the Ohio and Potomac—or two-thirds the number of spindles reported in 1860. By 1870 Southern mill owners were confident that they could make yarn five cents a pound cheaper than the Northern factories. The Augusta mills were paying 20 per cent. dividends, and factories at Thomaston, Macon, Columbus and Albany were equally profitable. The number of cotton mills in the former Confederate states was fourteen less than at the previous census, and there were 50,000 fewer spindles reported; but the latter loss was nearly compensated by the increase of spindles in Maryland and Missouri. The value of their product was greater in 1870 than in 1860; but this was due to currency inflation and the high price of cotton, rather than to larger output.

Though this typical and most important of Southern secondary manufactures declined during the war decade, primary industries recorded an advance. The temporary decrease in cotton planting was accompanied by more diversified agriculture and the growth of flour milling. The number of merchant mills south of the Ohio and Potomac more than doubled during these ten years, and in Georgia it nearly trebled. In all the Southern states the value of mill products rose from less than $64,000,000 to nearly $110,000,000, which was an absolute increase after allowing for currency inflation. This was caused partly by the rising importance of flour milling in Missouri, where the product increased in value more than three-fold; but there was real growth also in the two Carolinas, Tennessee, Georgia and Alabama. Virginia barely held its own. In Texas, strange to say, the figures show a positive decline, though the number of mills increased.

During this decade the number of sawmills in the

GATHERING TURPENTINE SAP BY THE CUP PROCESS.

Southern states increased about 1,200, and the nominal value of timber products rose by nearly $11,000,000. But this did not equal the rise in prices due to paper currency. However, Florida, Georgia, and North Carolina, as well as Missouri and Maryland, reported a positive increase in timber production. The number of pig iron furnaces rose from seventy to one hundred, and the production from 118,700 to 264,600 tons. More than 190,000 tons were made in the border states of Maryland, Kentucky, and Missouri. In Tennessee production had remained about stationary, but Alabama's output, though still small, had increased nearly four-fold. Upon the whole these years, in spite of the waste of war and the halting recovery of reconstruction, contained a prediction of the expansion of primary manufactures that was soon to follow.

Meantime the status of industries formerly localized in these states was affected in proportion to the position they took in the war and their freedom from actual military operations. Virginia naturally lost her primacy in tobacco manufactures to New York, and took second place to Missouri; but Kentucky remained the leading state in hemp manufactures. North Carolina made more turpentine in 1870 than ever before, and South Carolina became during the decade a leading producer of naval stores. The salt production of West Virginia more than doubled. Missouri was rapidly assuming rank as a centre for those manufactures that draw their raw materials from farms. Not only were the milling and brewing industries of the state growing rapidly, but meat packing and its subsidiary industries were acquiring importance. In 1870 Missouri made more than five-eighths of all the lard oil manufactured in the Union, or over 5,000,000 gallons.

Prior to the war Rhode Island made far more cot-

ton-seed oil than any Southern state; but between 1855 and 1870 this manufacture was definitely domiciled in the South, which thereafter remained almost the sole field of production. The latter year Tennessee made 830,000 gallons; Louisiana, 523,000 gallons, and Mississippi and Alabama a smaller though not inconsiderable amount. Smaller quantities were made this year in every cotton producing state except Georgia, Florida, and Virginia.

Considered apart from their environing influences and their subsequent development, these modest beginnings of new industries, and the slow growth or stationary condition of old ones, compare unfavorably with the rapid and constant progress of Northern manufactures during the same period. But as the first symptoms of a coming industrial revolution in the South they are of historic moment, and they help us to see the continuity of the movement towards manufactures in that section from a far earlier date—the slow progress from propaganda to results that reproduced so many features of the beginnings of industry in the North. The shock of war, the overthrow of old institutions, the reform of society, neither stopped nor started this movement—those things were lights and shadows playing over the current of economic evolution, or at least but secondary forces in shaping its course and regulating its rate of progress. The growth of population, the building of railways, the accumulation of capital, the slow perfection of commercial finance, the spread of popular education, and recovered political self-direction, each assisted the imperative trend toward industrial diversification and expansion.

In spite of the panic and depression that introduced the following decade, between 1870 and 1880 every important Southern manufacture was completely rehabilitated, and most industries made posi-

tive progress beyond any earlier development. In addition, new manufactures acquired a rank not previously accorded them. Virginia was still an important grain-growing state, and the Richmond mills, with added capacity, retained their hold on the tropical and trans-tropical market. The number of flour mills in the South increased over 10 per cent. in ten years, and their output must have risen nearly one-third. Sawmills added one-fourth to their number and nearly three-fourths to their total cut. Though iron furnaces increased in number but little more than 10 per cent., the amount of pig iron made in the South rose from 265,000 to 436,000 tons. Thus all the basic industries showed a combination of expansion and concentration, increased output from relatively fewer establishments.

Cotton manufactures, though as yet giving but faint promise of their subsequent development, were better established than ever before. Graniteville and Columbus were manufacturing towns that elicited the admiration even of New England observers, and almost every former seat of textile industry had regained prosperity and excelled its former condition. Steam factories were being erected in the coal belt of Alabama. Augusta was profiting by its ample and well-developed water power. New Orleans had turned seriously to the task of adding the rewards of industrial progress to its commercial laurels. Even Texas had thriving cotton mills, and Arkansas was beginning to manufacture yarn and cordage. The new factories were larger, and, relatively to the number of spindles, employed more looms than the earlier mills. One of the Augusta factories was pronounced by the leading New England cotton manufacturer of the seventies, Senator Sprague of Rhode Island, the best arranged in the United States. During these ten years the number of spindles in the

South nearly doubled, and the greatest relative progress was made in the heart of the cotton country. Georgia's spindles rose from 85,602 to 198,656. Yet these increases were not accompanied by a corresponding multiplication of factories, of which there were fewer in 1880 than in 1860. Railways and roads had widened the market and the commercial vision of Southern manufacturers. They no longer bought their cotton solely from the neighboring farmer, nor did they dispose of their goods only to nearby purchasers. They extended the capacity of their mills in accord with the larger area they served. Corporations were replacing individuals and partnerships as factory owners, and continuity of policy was found where were formerly the whims or the vicissitudes of single persons. The best business thought of the South, no longer absorbed exclusively by planting pursuits, was turned to the direction of enterprises destined to equal those of older commercial and industrial states.

During these years cottonseed oil acquired such a position in commerce that its manufacture became a staple industry. In spite of the fall of prices that followed the resumption of specie payment, the value of output rose nearly seven-fold. Louisiana remained the principal centre of the manufacture, producing over one-half the total, followed by Tennessee and at some distance by Arkansas and Mississippi. These states led chiefly by virtue of the mills at New Orleans, Memphis, and Mobile. Virginia was the only Atlantic cotton state that crushed any seed for oil, and its product was negligible. Contrary to the rule, the larger growth of this industry subsequently has been accompanied by geographical dispersion.

The discovery of phosphate rock in South Carolina shortly after the war gave an impetus to the manu-

COTTON SEED OIL MILL, PENSACOLA, FLORIDA.

facture of fertilizers in the South. Baltimore had previously been a seat of this industry, and in 1880 Maryland ranked first and South Carolina third among the states in value of output.

Virginia regained her primacy as the leading state in the manufacture of tobacco, except cigars. The effect of the internal revenue law had been to centralize these industries and distilling, and this added to other causes resulted in their being conducted at larger establishments. In distilling Kentucky ranked next to Illinois, but the relative dispersion of of the industry in that state, as compared with its Northern neighbor, is indicated by the fact that the product of its average plant was only one-tenth as great.

Of the group of states included by our definition in the South, Missouri easily took the lead in primary manufactures, producing in value over one-fourth of the flour and nearly one-fourth of the iron of the entire section, and surpassing all other states in the production of lumber. The future importance of its leather manufactures was predicted by the fact that it already made more harness and saddlery than any other state of the Union, and it led the South in the manufacture of boots and shoes. Kentucky lost its old rank as a seat of hemp manufactures. Already iron and steel were displacing cordage for rigging vessels, and cotton was supplanting hemp for bagging and jute for baling. Yet the diversified industries of Kentucky more than compensated for the loss of this single staple.

Baltimore, which more than ever stood for Maryland in the statistics of large manufactures, was developing an industry in which it had been a pioneer, canning oysters, vegetables and fruits. The latter branches at first employed the oyster canneries during their dull season, but later expanded into a busi-

ness of independent proportions. Subsidiary to these were the manufacture of cans and the lithographing of labels. Maryland, more than any other Southern state, engaged in reproductive manufactures not supported by immediate supplies of raw materials. This was due to the commerce of its metropolis with over-sea countries. At an early date Baltimore had rolled Chilean copper for Connecticut clock makers, compounded chemicals from the products of South America and Europe for inland users, mixed the guanos of Mexico and Peru to fertilize Virginia wheat and tobacco fields, and carved the cabinet woods of Honduras for the homes of Southern planters. Some of these industries declined relatively to other manufactures with changing commercial conditions and the rise of factories farther South. But new occupations more than compensated for the old, and though reproductive industries, especially of iron and wood, began to extend appreciably in other Southern states, Maryland remained the principal seat of secondary manufactures.

The period of the Reconstruction, economically, is an elastic term, not applying to the same range of dates in manufacturing as in political annals. Before 1880 the South had more than recovered, in the industrial field, the position it occupied at the outbreak of the war. Indeed the ill effects of the war were held to account for a slowness of development that was such by contrast with the remarkable advance of the North, rather than by comparison with what had previously been the normal growth of the South. Shortly after the surrender, Southern cities experienced a temporary revival, caused by immigration and by the removal of many ruined planters to the towns; but the depression of agriculture in the surrounding country put a quick end to this partly speculative prosperity. Political disorder and the

financial panic of 1873 coöperated to hamper subsequent progress. That Southern manufactures should not only have recovered, but should have made positive growth, under these conditions speaks for the recuperative powers and the moral energy of those states. By 1879, when the whole country began to emerge from the cloud of a long business depression, a farsighted eye might already read in the promise of the present the speedy realization of a future industrial growth for which there was no precedent in the past history of the South.*

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* *Statistical Note.*—The following are the census figures for the gross product of Southern manufactures in 1870 and 1880 respectively. For comparative purposes, as showing the progress of manufactures during the decade, they have no value whatever, because the inflation of the currency in 1870 gives a fictitious price to manufactures, estimated by the Director of the Census, that year, as 56 per cent. above the normal price. Such estimates, however, are largely a matter of personal opinion, and cannot be employed with confidence as applying equally to the products of individual industries. Probably, however, the gross value of manufactures in 1870, if expressed in metallic currency, would be about two-thirds the value as stated in the table.

	1870	1880
Alabama	$13,040,644	$13,565,504
Arkansas	4,629,234	6,756,159
District of Columbia	9,292,173	11,882,316
Florida	4,685,403	5,546,448
Georgia	31,196,115	36,440,948
Kentucky	54,625,809	75,483,377
Louisiana	24,161,905	24,205,183
Maryland	76,593,613	106,780,563
Mississippi	8,154,758	7,518,302
Missouri	206,213,429	165,386,205
North Carolina	19,021,327	20,095,037
South Carolina	9,858,981	16,738,006
Tennessee	34,362,636	37,074,886
Texas	11,517,302	20,719,928
Virginia	38,364,322	51,780,992
West Virginia	24,102,201	22,867,126
	$569,819,852	$623,840,980

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MODERN MANUFACTURING DEVELOPMENT IN THE SOUTH, 1880-1905.

THE general business revival of 1880 stimulated industry in all sections of the country. New factories were opened and old ones enlarged, increasing the demand for Southern raw materials and causing a flow of money to the regions that produced them. Wherever in the South this capital accumulated, it helped the growth of manufactures in the same vicinity. Railway extensions, begun at this time, tapped new groups of resources and opened broader markets, fostering thereby the growth of cities as distributing centres, with the diversification of industry that attends urban expansion. The renewal of speculation on a large scale, and the readiness of money to enter untried fields of investment, drew the attention of promoters to development projects in the Southern states; and though some of these enterprises failed, others more than realized the

hopes of those who undertook them. In the midst of this activity the advantage the South offered for certain manufactures was not overlooked. New England spinners fully realized for the first time that cotton mills beyond the Potomac were quietly earning dividends that tempted competition. Pennsylvania iron masters and Northern lumbermen discovered that new areas of timber, coal, and minerals had of late become accessible, where mills and furnaces were sure to pay a profit.

Confidence in the stability of political conditions in the reconstructed states was gradually restored. As the results of the war came to be accepted and the acuter animosities that followed it died down, outside capitalists no longer feared disorders threatening the safety of investments in the South, and a spirit of helpful coöperation in business enterprises replaced the mutual distrust that had in a degree kept asunder people engaged in the same pursuits in different sections of the country. Understanding began to supplant misunderstanding, and a more intelligent appreciation of the Southern character, as well as of Southern industrial conditions and possibilities, took the place of former prejudices or preconceptions. The fifteen years since the war had been in the South, and in other parts of the country with regard to the South, a period of appraisement, not only of material resources and opportunities, but also of social and moral values. Outside of the South the justice of many Southern ideals and opinions was more widely recognized; within the South the importance of modern industry, not solely as a means for gaining wealth, but equally for developing in its broader aspects true national greatness, was at last acknowledged both in theory and in the practice and aspirations of the people. It was seen that labor, in order to be honored by the whole

nation, must be so diversified as to accommodate the different aptitudes and status of different classes and races. In the North, on account of accidents of climate and situation, men had been forced into such a variety of pursuits that the skilled and the unskilled, the intelligent and the ignorant, the cultured and refined and the uncultured and rude, all found employment for their industry without being confounded the one with the other. In the South, with plantation agriculture dominant and labor servile, the line between manual occupations and all other employment, instead of that between occupations demanding higher and lower capacity, tended to become the final class boundary. Fifteen years of emancipation, together with the economic distress following the war, made work a necessity for a majority of both races, and thereby created an incentive for diversifying this work, so as to make it correspond, as in the North, to the difference in rank and ability of the workers. Not altogether consciously, but with the certainty of a great, unconscious, social movement, the people of the South turned to manufactures as a chief measure to attain this end.

By 1880 this new order of thought and action was well established. Southern industry had passed the experimental stage. Expansion and development, rather than pioneering, remained to be accomplished. The conditions were no longer those that attract a few hardy adventurers into a new field of business, but such as draw conservative capital, in large units and in the hands of trained administrators, to assured spheres of enterprise. Some of the principal Northern manufacturers were preparing to establish branches in the South, or even to transfer their entire plants to that region. Meantime the older Southern manufacturers had acquired

a firm business footing, and with added experience and capital, and an intimate knowledge of local conditions, were extending their factories, widening their markets, and entering the highest ranks of their respective industries.

Though the timber resources* of the South had been exploited from the earliest settlement, and large systematic lumbering operations were conducted in this section before the war, several reasons besides their original vast extent preserved intact in this region great tracts of forest country. Inaccessibility protected alike the oak and hickory of the mountains and the cypress of the coastal swamps. More readily available supplies of both hardwood and pine, in Maine, Michigan, and the upper Mississippi states, furnished the Northern domestic market. Southern consumption was not so large in proportion to population as in the North, and was supplied almost entirely by neighborhood mills. Commercial lumbering, in 1880, was still confined principally to the yellow pine districts immediately tributary to a few seaports. Except some liveoak for shipbuilders, the other timber resources of the South remained, in a modern sense of the word, unexploited.

Until 1870 the northeastern states of the Union held first rank in lumber production, a position they had acquired and maintained before the colonies became independent. In 1880 the Lake states usurped this primacy, which they retained until 1905, when they were surpassed by the South. At the latter date the Southern states, exclusive of West Virginia, Kentucky, Tennessee, Missouri, and Oklahoma, which are otherwise grouped in the census figures, produced nearly 32 per cent. of the lumber made in the country. Including these states, the

* For additional information see article.

total product was valued at $245,000,000, or 42 per cent. of the total output of the Union. During the preceding twenty-five years the value of lumber products in these states had grown to more than five-fold the value in 1880, while the country's total output had but little more than doubled. The lumber made in Southern mills during 1904 was worth more, by $12,000,000, than all the lumber made in the United States twenty-five years before.

It would be neither possible nor profitable to follow all the details of this development. The declining production of the Northwest and of the Lake region occurred just when there was an enlarged demand for lumber from the whole country, which must be met by Southern mills. The internal growth of the South, the rise of cities, the increased domestic consumption of furniture, vehicles, and agricultural implements, the demand for containers for Southern manufactures and produce, not only added to this market, but diversified its character; so that timbers formerly useless now became available for particular services.

No Southern state, though of longer settlement, has experienced, as have those of the North, an absolute decrease in the value and amount of its lumber product. Maryland, where a decline would be more probable than elsewhere, increased the value of its output 50 per cent. between 1880 and 1904, and produced its maximum recorded output the latter year. During the same period the product of the oldest of our states, Virginia, rose from $3,400,000 to $10,000,000.

The reason for the constancy of this growth has been not alone the wonderful wealth of timber left standing in the South, but also its variety. From the mountains to the sea, throughout the South Atlantic and Gulf states, lie three parallel zones of

forest. The highlands, extending from northern Maryland southward, and including the Piedmont region of Virginia and Carolina, together with a large part of West Virginia, Kentucky, and Tennessee, are covered with diversified woodlands, in which pine and oak predominate, accompanied by hemlock, poplar, and a variety of less abundant hardwoods. The Atlantic lowlands and the Gulf plain, from Virginia through to the Texas prairies, were originally a nearly continuous forest of yellow pine, breaking into meadow openings here and there, especially in Florida and southern Louisiana. From North Carolina around the circuit of salt water into Louisiana, and up the lower Mississippi and its tributaries, the frequent swamp lands are occupied by cypress, with which in fresh-water districts are often intermingled gum trees and other less esteemed woods, accompanied by some oak. Live-oak groves, never so abundant as the demand for their timber makes desirable, compete with the cypress for the rich lowlands at the verge of the salt marshes.

The yellow pines, among which Southern lumbering began, still afford a greater share of the product. In 1900, of fifteen billion feet of timber cut in the South, nearly ten billion feet were of this variety; and five years later these forests produced over eleven billion feet, or considerably more than a third of the entire log-cut of the United States. During recent years the growth of this industry has been most rapid in Arkansas, Mississippi, Louisiana, and Texas, and in this section are found the largest logging camps and most modern mills. But the latest available figures give Georgia first rank in total output, and North Carolina second. East of the mountains the average capacity of mills is smaller than in the newer districts, partly for his-

torical reasons, as this is the older seat of the industry and earlier plants and methods survive, and partly on account of topography, which enables the sawyers of the Atlantic slope to use water power, to which the size of their mills is limited, while in the Southwest steam is more commonly employed. Of the mills of largest size, cutting fifty million feet or over yearly, Texas in 1905 had four, Mississippi three, Louisiana two, though these states ranked in this respect behind Minnesota, Wisconsin and Washington. In Mississippi, Louisiana, and Texas most of the mills sawed over a million feet a year, while in the Atlantic states the greater number were of less than this capacity.

Even so long ago as the time of the French and Spaniards, the Louisiana colonists cut cypress in the swamps near New Orleans, from which they made sugar boxes and house frames for the West Indies. The excellence of this timber was already recognized, and no inferiority of quality, but inaccessibility alone, prevented its early utilization. Since railways skirt the seas and penetrate the deltas throughout the Southern lowlands, and sawmills can be placed economically without regard to water power, and rising prices justify costlier logging methods, this lumber has rapidly acquired commercial importance. In 1900 the cut approximated 700 million feet, and since then it has rapidly increased. The cypress millers consider their business distinct from other lumbering, and most of them are associated in a single organization.

Of the highland timbers the most valuable and important is the white oak, of which more than two billion feet yearly are cut in the Southern states. The annual cut of poplar, mostly in Kentucky, Tennessee, and West Virginia, is somewhat less than half this amount. Nashville is one of the leading

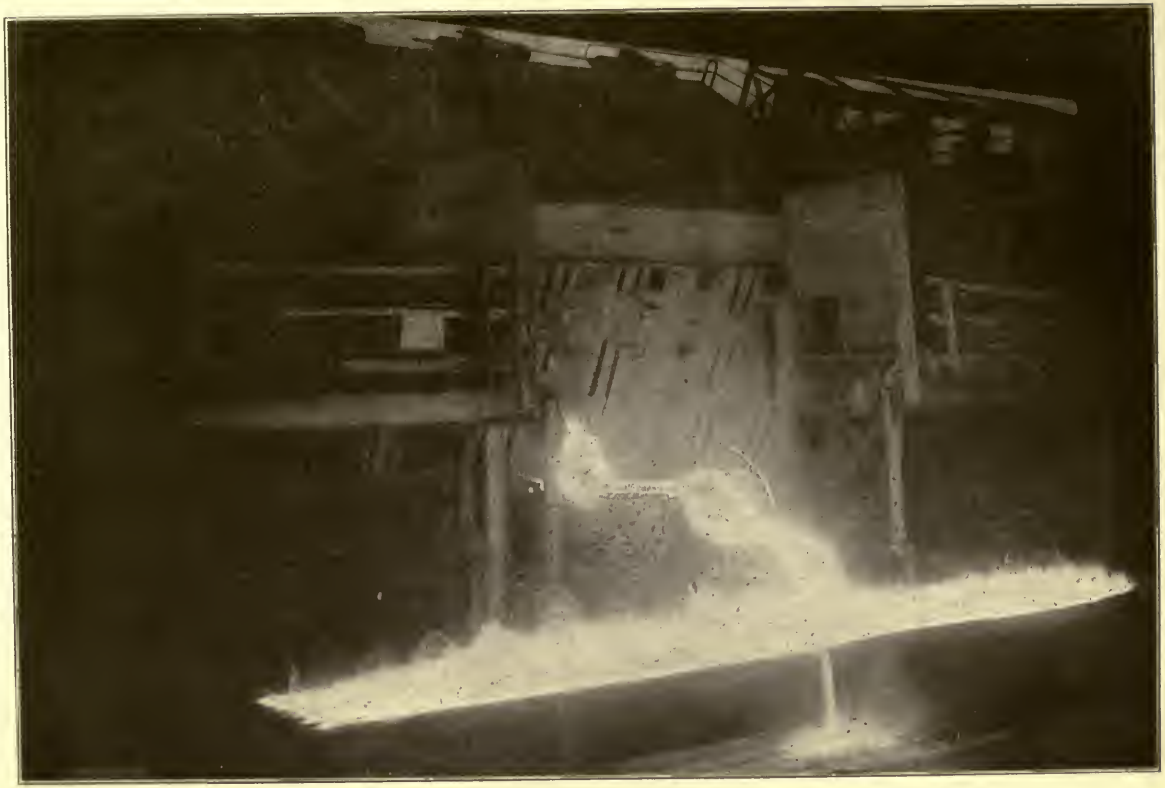
hardwood markets of the country, and the presence of this timber has attracted to the states just mentioned and their immediate neighbors a large number of furniture and vehicle factories and other establishments using mill products and bark.

A complete survey of the lumber industry would include the manufacture of shingles and cooperage stock, which are important branches of the business, as well as some of the minor or ruder products of the logging camp and sawmill. Even in the plentiful woodlands of the states where a few years ago standing timber was often considered an encumbrance, the wastage of the saws is now transformed into handles, knobs, clothespins, and a variety of wooden novelties. About 1890 cottonwood came into use for boxmaking. Timber quite unsuitable for flat sawing or for ordinary structural purposes, is now utilized for crates and box veneer, and sometimes for staves and heading. These special branches are widely distributed. At Fort Smith, Arkansas, where timber and prairie meet, is a large group of woodworking factories that supply furniture and utensils to the western homesteaders. Into these industries has crept a division of labor and specialization of production unknown to the neighborhood handicrafts of the Old South. Large works are devoted to making one or two parts of an article, such as broom handles, wagon spokes, or plow beams, which are later assembled in complete objects by other manufacturers.

The natural advantage which the South possessed for iron making was well understood before 1880, and we have seen that in Alabama and Tennessee, where there was the most promise of future expansion, measures had already been taken to develop these resources. Iron smelting was even then such an old industry in this section, that in face of

the competition that railways and cheaper methods of production in the North had created, the earlier enterprises of some states were already entering upon their final decline. The history of the next twenty-five years is a record of the territorial and industrial centralization of this basic manufacture, accompanied by fundamental technical improvements and vastly increased output.

As early as 1883 Northern producers discovered that foundry irons could be made in the South more cheaply than in Pennsylvania and Ohio; and at that time Southern pigs were shipped regularly to New England. Consequently Pennsylvania manufacturers began to negotiate for furnace property in Alabama. In 1885 Chattanooga had nine furnaces, seven foundries, and a score of other iron works. From this date to 1890 the progress of Southern iron enterprises was uninterrupted. The former year four new Alabama furnaces, of larger average capacity than those hitherto erected, were started in a single week. The Birmingham district had eight furnaces, seven of which were in blast and yielding a weekly output of 2,800 tons. Northern and Eastern buyers took one-sixth of this product, the remainder going to reproductive works in the South and to Western markets. This was not yet a large enough outlet—especially in view of prospective development—and every effort was made to encourage local iron-using industries. In 1886 Birmingham had ten furnace stacks in operation, with more than double the output of the previous year, and ten more stacks were under construction or contracted for, putting in sight a total daily capacity equal to the weekly production two years before. The town of Bessemer was founded near a tract of ore considered suitable for this quality of steel. In 1887 the iron transactions at



TAPPING A 100-TON HEAT OF STEEL FROM TILTING OPEN HEARTH FURNACE.

Birmingham amounted to $12,000,000, and the investment that year in new Alabama furnaces was estimated at three-fourths of this sum.

Furnace building was not confined to Alabama and Tennessee, though Birmingham and Chattanooga felt the first and most permanent results of this expansion. In the old iron-making state of Kentucky, an English company with a capital of $3,000,000 founded the new industrial town of Middleborough, where it erected four iron furnaces and a steel plant, together with other works. A company with $1,000,000 capital was organized to manufacture, at Greensboro, North Carolina, Bessemer steel from the neighboring Cranberry ores. In the Valley of the Virginia older and more conservative enterprises enlarged their capacity and improved their equipment. Roanoke grew into a city under the shadow of furnaces. Buena Vista and other new furnace towns sprang up. Not quite belonging to this district were the Sparrow's Point Works, at Baltimore, which in 1890 were approaching completion and were destined to acquire permanent importance in the steel-making and the ship-building industries. Reproductive manufactures, with their apparatus of puddling and heating furnaces and rolling mills, were following close upon the primary iron producers, nearly every week recording the erection of such plants at some minor Southern city or at one of the larger furnace centres. In August, 1890, of the thirty-six furnaces under construction in the United States, twenty-five were in the South, and the competition of Southern iron was seriously felt by Northern producers.

The expansion of furnace capacity during this boom period was not unwarranted in its extent, but was unwise in its direction. Town site promo-

ters and other land speculators organized companies to mine and smelt iron at points where ore was insufficient, fuel too distant, or other causes prevented profitable manufacture, their object being not so much to establish bona fide industries as to further the sale at advanced prices of other property. Some of those who entered business in better faith made an unfortunate choice of location, displayed inexperience in planning works, or with too great optimism in the continuance of quick sales and high profits ventured into enterprises beyond their capital. As a result, notwithstanding a continued demand for metal, in the autumn of 1890 a reaction occurred, due to the shutting down of unprofitable furnaces and to the influence of these failures upon investors. But this crisis served only to bring out more clearly the South's ability to make cheap iron. When prices fell the following year, so as to close many of the Mahoning and Shenango furnaces, and Northern output fell off 20,000 tons a week, the product of the more important Southern centers continued to increase. Pennsylvania companies now began in earnest to establish branches in the South or to transfer plants to that vicinity. In the fall of 1891, despite continued low prices, a decided revival occurred in the Birmingham district, and by December Southern furnaces were making a record output. During the entire year the decline in Southern production had been only 5 per cent., as compared with 10 per cent. for the whole country.

From 1891 to the crisis of 1893 was a period of renewed prosperity and furnace building, and of a marked drift, at many points in the South, towards secondary iron manufactures. Most of the ironmasters of this section, and especially of the Chattanooga-Birmingham district, met the first

POURING A LADLE OF BLAST FURNACE IRON INTO A 700-TON MIXER.

shock of the following panic without serious disaster. In the severest stress of the crisis the large Roanoke Rolling Mills, in Virginia, and the Woodstock Company, at Anniston, Alabama, went into the hands of receivers or were taken over by their bondholders. The ambitious works at Middleborough, Kentucky, and at Greensboro, North Carolina, had already proved unprofitable. But Alabama furnace men had been taught by the reaction two years before to improve their practice and cheapen costs. As recently as 1887 ores were seldom selected and never treated; owners could not predict either the quality or the quantity of their product; and Southern pigs were light, dull grained, and weak. Since that date the practice of grading ores, and of washing both ore and coal, had been adopted, increasing the output of identical furnaces 75 per cent.; and Southern iron, though different in character from that made in the North, now equalled the latter in quality.

The lowest production of the panic year came about the first of October, when it was hardly a third the normal, after which there was slow recovery. When the final statistics of these twelve months came in, it was found that the South's production had fallen off 17 per cent., while that of the whole country had decreased 23 per cent. That is, the South had been able more than to hold its own in competition with the oldest and largest furnace districts of the country, during a crisis of extreme price cutting and keenest rivalry for business, when not alone cheap labor and accessible materials, but financial strength, intelligent furnace practice, and every resource of a highly developed industry were necessary to avoid disaster.

The following year the effect of the panic showed even more clearly in the statistics of national pro-

duction, which exhibited the influence of the depression throughout their entire course. Nevertheless, in the South at least, this was a period of gradual recovery and adjustment. As early as January one of the larger companies was making a record output at certain of its furnaces. Extensions contemplated by other firms were checked by the uncertainties of the tariff bill then before Congress. During 1894 Alabama founders began to export cast iron pipe, a single shipment of 10,000 tons going to Japan. This was scarcely more than a decade since the appearance of Southern pigs in the Northern market, then still a matter of comment. The next year opened with an encouraging demand for iron and conditions predicting a general revival. It took some months for furnaces that had been out of blast, or running with a decreased force and output, to assemble labor, replenish ore stacks, and get fully under way; but these preparatory activities gave new life to the iron districts of Alabama, Tennessee, and Virginia. By September, though the aggregate output rose very slowly, new furnaces were going into blast for the first time. The export of pipe to Japan was increasing, and large quantities of Birmingham basic iron were shipped to the Pittsburgh steel furnaces. And although until after 1896 the industry did not wholly emerge from its long convalescence, the intervening period witnessed speedier recovery in the South than in other sections of the country.

Shipments of Southern iron to England and Italy, as well as to the Far East, were recorded. These foreign sales materially assisted the Alabama furnaces. The South's proportion of the total output of the Union rose from 18 per cent. in 1895 to 23.3 per cent. in 1896. During the succeeding year the export trade continued to be an interesting feature

of Southern iron expansion; and before the end of 1898 Birmingham claimed to be the third largest iron shipping point in the world, following Glasgow and Middleboro.

The century closed with the beginning of a new epoch in this industry, characterized less by exploration and experiment, and by primary technical progress, than the previous years, but more by centralization of plants and management and improvements in administration. There were eleven fewer furnaces in the South than ten years before, but the output had nearly doubled, and was now over 5,500,000 tons. In 1899 a single company was formed to take over ten or twelve idle furnaces in southwestern Virginia and Tennessee, built during the land boom of 1890, as well as the big plant at Middleborough, Kentucky, which had never prospered. Another company near Birmingham acquired and began to operate formerly independent furnaces with an aggregate annual capacity of 180,000 tons. Such new organizations, with ampler capital, were able to bury in a measure the memory of the failures upon which they were built. More recently the largest single producer in the South, the Tennessee Iron and Coal Company, has been absorbed by the United States Steel Corporation, after itself absorbing and assimilating not only single plants, but companies and combinations of companies operating many mines and plants. In Alabama the average capital per establishment has increased from $340,000, in 1880, to over a million dollars at the present time. And though the number of blast furnaces in the South has fallen from 150 to 90 since the former date, the average annual output per furnace has risen from 2,650 tons to over 220,000 tons.

A similar centralization has occurred in the ter-

ritorial distribution of blast furnaces. States like Missouri, once leading producers, have ceased to make iron. In 1880 nine of the sixteen states in this group had active furnaces, in 1905 but six. The former year all of the nine producing states except Texas were relatively to the total output large producers, while in 1905 Alabama alone made 70 per cent. of all the iron smelted in the South. Though during the last five years the South as a whole has hardly held its own in the ratio of its iron tonnage to that of the Union, this is because the declining manufacture of other districts has more than counterbalanced Alabama's rapid increase.

About 1886 considerable attention was given in the South to the manufacture of steel from Southern iron. But these experimental enterprises, though in some instances they attained technical success, did not establish themselves commercially. At Baltimore and Richmond successful plants were erected to use Northern pigs and imported ores. The Sparrow's Point works made considerable shipments of steel to India and Asia Minor. But prior to the crisis of 1893 very little all-Southern steel was manufactured. The basic ores of the South did not adapt themselves either to the Bessemer process or to the acid open-hearth process, which until after the middle eighties were the only methods used in this country on a commercial scale. Soon after the basic open-hearth process was introduced at Homestead, Pennsylvania, Southern pigs were sent there for conversion into steel. About 1890 the Henderson Company, at Birmingham, and the Southern Iron Company, at Chattanooga, successfully made steel by the basic process. Thereafter uncertainties as to patents and unpromising commercial conditions were for a time obstacles to further development. In 1902 it was estimated that

with plants soon to go into operation the Southern production would amount to 600,000 tons, in addition to over 200,000 tons worked immediately into finished forms. Birmingham steel even found its way to Great Britain. Northern companies erected steel furnaces, in connection with Southern branches for the manufacture of specialties. In 1905 the manufacture of steel in the South was centered in Maryland, West Virginia, and Alabama, practically all that produced in the two former states being by the Bessemer process, and probably from Northern iron. Alabama made nearly 228,000 tons of open-hearth steel from its own ores.

The growth of primary iron manufactures in the South has naturally encouraged the rise of local industries using iron and steel. Stove plants have moved from other parts of the country to the neighborhood of the foundry-iron makers of Alabama. Missouri has lost large pipe works to the same vicinity, and in this manufacture the South holds leading rank. Wheeling is a nail-making center. Steel rails and structural steel are manufactured at several points. Around Birmingham special plants are entirely devoted to making car wheels and axles. For strictly foundry work this part of the South has a decided advantage—greater than it affords for plastic metal manufactures. Baltimore and Newport News since 1890 have become two of the principal centres in the country for building steel ships, the yards at the latter city having turned out the largest passenger steamers on the Pacific. The tonnage capacity at either place easily exceeds that of the entire country a few decades ago. Richmond has large locomotive works, an expansion of its earlier manufactures. Cotton spinning has attracted textile machine shops

to Charlotte. The multiplying metal-working industries of the Ohio Valley depend largely upon the North for steel. But in the triangle from Atlanta to Birmingham and Chattanooga is arising a group of manufactures, employing iron and its derivatives for finer uses, which owes its existence principally to the coke ovens, blast furnaces and steel works of the vicinity, and also to the accessibility of hard wood and the proximity of a growing market. Georgia is taking constantly higher rank in the manufacture of agricultural implements and machinery. In that state are now made passenger coaches, in addition to flat and freight cars. Works for making tools and hardware, and minor specialties related to these, are becoming frequent.

In 1880 there were 665,000 spindles in the group of states here spoken of as the South; in 1905 these spindles had increased to 8,200,000. At the beginning of this period these states had slightly over 6 per cent. of the spindles in the Union, and at its end they had nearly 33 per cent. Meantime the number of establishments has risen from 183 to 563, and the looms have multiplied from less than 15,000 to more than 182,000.

The Atlanta Exposition, in 1881, was the hopeful and conscious expression of the opening of a new era for Southern industry; and at one of the meetings attending that event a Northern cotton expert stated that the best conducted mills in the South at that time equalled in management and economy of production the best mills of his own section. One Augusta manufacturer was already shipping annually to China cotton goods to the value of $250,000. Consequently, wonderful as has been the growth of this quarter century, it is but the realization of what was even then practically assured by existing attainments and conditions. The record

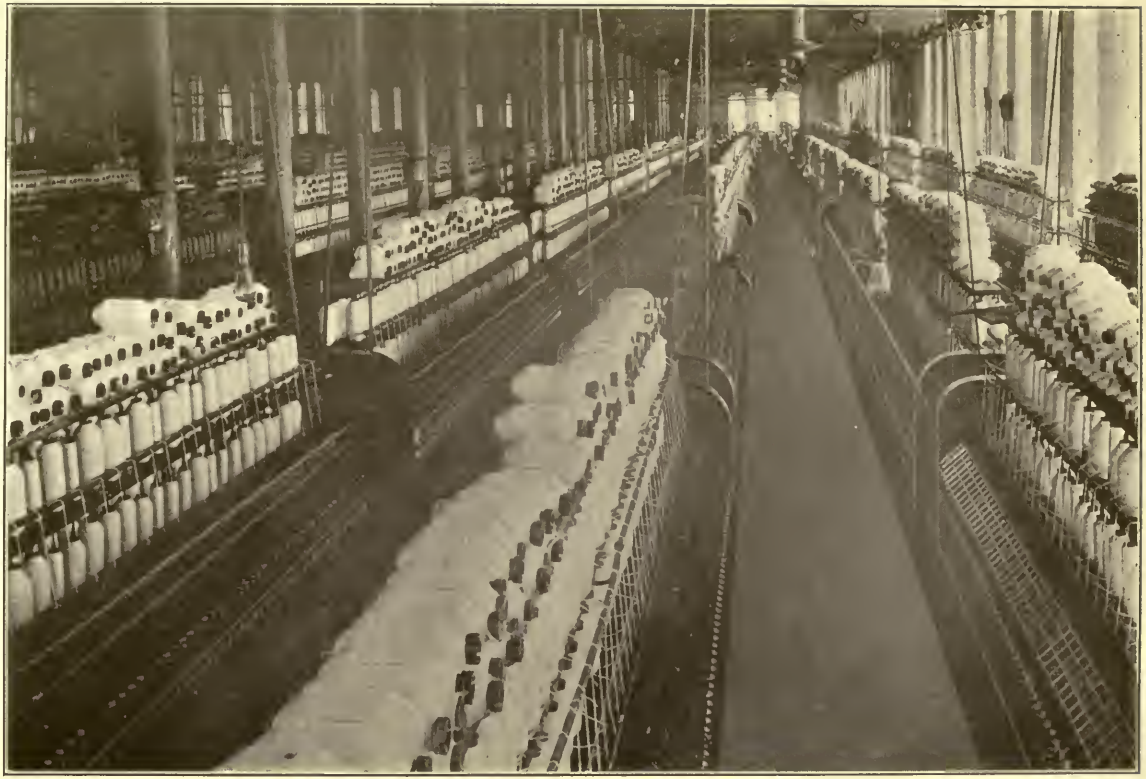
of this period, therefore, is one of almost uninterrupted expansion and prosperity, supported by an optimism too strong to be clouded by temporary reverses and too prudent in the main to lend itself to unhealthy stimulation.

The amount of capital invested in Southern cotton factories during 1882 was estimated at nearly $10,000,000. The readiness of money to enter this business is not surprising in view of the fact that large and well conducted corporations were paying from seventeen per cent. to 24 per cent. dividends. The distribution of new plants and improvements was general throughout the states east of the Mississippi, but there was more activity than elsewhere in the Carolinas and Georgia. Conditions continued favorable to manufacturers until the middle of 1884, when a depression began that lasted until the autumn of 1885. Many mills were closed, and others ran on short hours. The Graniteville, South Carolina, mills lost money for the first time in over seventeen years. In the spring of 1885 this company, in association with other large Southern factories, addressed a circular to mill owners suggesting the formation of a selling pool, to include all the cotton manufacturers of the South. Apparently nothing resulted from this suggestion, the improvement in prices soon making it unnecessary. This was a period of reorganization and improvement in individual establishments, and of centralization through the absorption of weaker plants by stronger competitors. During the excessive prosperity of the previous year some factories had been constructed too expensively, and had been faultily arranged by inexperienced managers. Too little importance had been placed on skilled superintendence. This short period of adversity revealed and remedied such mistakes, sometimes with no

small hardship to the original promoters and investors. However, few of the older companies were thus affected, and there were no failures or reorganizations that made a profound impression on the industry. The South already had one mill, at Columbus, Georgia, with 45,000 spindles and more than 1,500 looms. At New Orleans large steam mills were proving successful, but one at Memphis was not so fortunate. The closing months of 1885 witnessed a general resumption of operations, with some factories behind in their orders. During the previous five years the spindles in the South had more than doubled. Construction was dearer than in the North by from two to four dollars a spindle; but this was more than offset by cheaper labor, cheaper power, and cheaper cotton.

In 1886 South Carolina repealed an act, passed in 1872, exempting from state, county and municipal taxes for ten years capital invested in cotton, woolen and paper manufactures. During these fourteen years the annual manufacturing product of the state had risen from less than $10,000,000 to over $32,000,000, and it was thought that the law had accomplished its purpose. The repeal did not affect manufacturers already established, whose term of exemption had not yet expired.

During the depression of cotton spinning in the middle eighties this industry had been outdistanced in rate of progress by iron; but in 1887 it again came to the front. During the first six months of that year forty-four new textile mills were erected in the South, as compared with but eight during the corresponding period of 1886. New mills were reported in operation at several points in Mississippi, a state that had hitherto given little attention to manufacturing, and a large company was organized at Dallas, Texas. A Vermont mill re-



SPINNING ROOM IN A COTTON MILL, COLUMBUS, GEORGIA.

moved its plant to Mobile. Georgia ranked first in this industry, with North Carolina second and South Carolina third. By the close of the year the number of spindles in the South was about 1,500,000, and two years later they exceeded 2,000,000. During the last part of the decade South Carolina made the most rapid progress, passing Georgia in the number of looms and taking second place in the number of spindles. But North Carolina, where for topographical reasons the industry remained more dispersed, had the largest number of establishments, and therefore the largest number of growing points for future expansion. In the manufacture of the higher grades of cotton goods then produced in the South, Georgia, with its large factories, long experience, and extensive capital, easily held the lead. It was the only state that shipped bleached yarns, and had the only three print works in the South. Augusta alone contained 200,000 spindles, and the investment represented by its thirteen cotton factories exceeded $4,600,000.

During this decade the South's proportion of the total spindles in the country had risen from 6 per cent. to 14 per cent. A New England textile periodical estimated that in the manufacture of coarse goods the South had the advantage of 25 per cent. lower wages than Lowell and, on account of longer hours, from 10 to 20 per cent. higher product per loom. More creditable to the social progress of this section would it have been had the state of the industry and social demand induced manufacturers to dispense with unnecessarily long hours for very youthful operatives. But the condition of the operatives was improving, not stationary, while it must be remembered that the ultimate success of Southern mills and factories was founded on factors in competition more permanent and universal

than cheap labor. Having found since the war means to ship goods directly to the primary markets of the entire world, and accumulated means to finance their own exchanges with less disadvantage in comparison with their Northern competitors, Southern manufacturers now saved in reality cotton freights between field and factory. Favored by cheap raw materials, and limited by half-trained labor, the factories of this section produced to best advantage heavy sheetings and drillings—the first step forward in textile evolution from the yarn products of the ante-bellum mills. But already an occasional attempt to spin and weave finer numbers was exciting the comment and apprehension of Northern manufacturers.

During the early nineties small mills were established at several points in Arkansas, and a large factory was built near Denison, Texas, partly to promote land sales. The latter became successful in time, though it did not escape the initial misfortunes usually attending the class of enterprises of which it was typical. In 1892 commercial returns indicated that 305 mills were operating in the South, with about 2,000,000 spindles, while forty-nine mills, with an unspecified number of spindles, were closed. North Carolina now ranked first of the Southern states in the number of spindles, and was followed in order by South Carolina and Georgia. In South Carolina the average factory contained 10,000 spindles, and in North Carolina less than half that number. The old industry of making cotton bagging had recently attained large dimensions.

The panic of 1893 did not immediately affect the cotton manufacturers of the South, who experienced no serious slackening of trade during the first half of the year. But about the middle of the

summer they encountered the full force of the reaction. Many mills closed for want of orders and several failures were reported. Yet so speedy was the partial recovery that followed, that factories began resuming in October, and by the opening of 1894 textile journals were recording the organization of new companies and the enlargement of old plants. One firm in South Carolina, with proposed additions to its equipment, would soon be operating 100,000 spindles. In August, 1894, the Massachusetts Mills, of Lowell, authorized an increase of capital to erect a Southern factory. The Dwight Manufacturing Company, of Chicopee Falls, began a 25,000 spindle mill in Alabama; and the Whittier Mills, of Lowell, erected machinery at Atlanta to spin yarns for their northern twine factory. During these twelve months the number of spindles in North Carolina increased 10 per cent. The Riverside Mills, at Danville, Virginia, which had worked steadily throughout the panic, erected this year an 18,000 spindle addition. In the autumn the new mills and extensions under construction in the South were estimated to represent a capital of $6,000,000, and were expected to add 285,000 spindles and 6,000 looms to the manufacturing equipment of that section. Altogether 1894 was one of the most active periods of mill construction hitherto experienced in the Southern states.

The prosperity of 1894 continued through the following year. Since 1890 the cotton consumption of the Southern mills had risen rapidly, while that of the northern mills had decreased. The low price of cotton stimulated the manufacture of coarse goods, while the depression curtailed the demand for finer fabrics. The recent great extension of equipment in the South gave this part of the country the advantage of modern machinery and in-

stallation. Electricity began to be used for power transmission and distribution. This predicted the centralization of mills using water power, which previously had been dispersed in order to take this power directly from the wheels, to which their capacity was limited. Henceforth a single factory could derive its energy, by electrical transmission, from many such sources, and multiply its spindles to correspond.

The summer of 1896 began with less favorable conditions, and in June the Southern Textile Manufacturers' Association advised all mills to curtail production 50 per cent. Replies were received the following month showing an actual curtailment of 38 per cent. The Tuscaloosa Mills, and the Eagle and Phœnix Mills, the latter once the largest in the South, went into the hands of receivers. The consumption of cotton per operating spindle fell from 164 pounds the previous year to 142 pounds. Yet this period of comparative depression served to check the rapidity of progress, rather than to stop it entirely. In spite of the lower consumption per spindle, active machinery so increased that Southern manufacturers used 42,000 bales more of cotton than in the previous year. In contrast, northern consumption fell off ten times that amount. During 1897 the South consumed for the first time over one million bales; and North Carolina was estimated to manufacture 50,000 bales of cotton more than it produced.

Continued activity and expansion characterized the last years of the decade. Within eight years the number of spindles in the South increased 150 per cent., as compared with but 38 per cent. in the entire country and 20 per cent. in New England. The knitting industry was becoming important in North Carolina and Tennessee, creating a market

for soft yarns. Though mule spinning had been attempted in the South many years before, it had recently been confined to North Carolina. The demand for diversified products now extended this industry to Georgia, where one new factory contained mule spindles exclusively. Gigantic plans were not merely projected but speedily realized. At Columbia, South Carolina, a single mill began operations with 104,000 spindles and 2,600 looms, manufacturing expressly for the China market. Mississippi was exempting from taxation cotton factories and rapidly acquiring such establishments, while farther West, in Texas and Arkansas, companies were erecting mills. But nothwithstanding the growing geographical range of cotton manufacturing, an equal tendency was manifest to concentrate in particular localities. Within 100 miles of Charlotte, North Carolina, were 2,238,000 spindles and 62,000 looms, or almost one-half the looms and spindles in the Southern states.

The old century closed with the most active season on record for cotton manufactures, and this prosperity and accompanying growth continued the following year. During the twelve months ending with August, 1900, over a million and a quarter spindles were installed in Southern factories, and the cotton consumption of these establishments exceeded a million and a half of bales. South Carolina now took precedence of the other Southern states; but the leading textile city of the South was Augusta, just across the Georgia boundary, where on white goods alone 9 companies operated 220,000 spindles and over 6,000 looms. This was nearly a fourth the spindles and more than a fourth the looms in the latter state.

Soon after 1900 the movement towards administrative centralization that about this time was

characteristic of the iron industry in the South, and of business in general throughout the country, appeared in cotton manufacturing with the organization of the United States Cotton Duck Corporation, with an authorized capital of $50,000,000, to control 20 of the twenty-two duck factories in the South. This company was later merged with the Mount Vernon Company, of Baltimore. The larger size of the individual plants now being established is indicated by the fact that though during the second quarter of 1902 only 16 new mills were started in this section, the increase in machinery was 487,000 spindles and nearly 14,000 looms, and the investment about $10,000,000.

Since 1902 temporary fluctuations have occurred in the rate of progress of Southern cotton manufactures, but no serious setback has marked this period. Fewer large factories have been erected by independent companies, but old companies have enlarged their plants to take care of the growing demand for yarn and fabrics. The continued western extension of the industry has brought into being a number of smaller mills, in places where the manufactures are still more or less experimental. In 1903 the South for the first time in its history manufactured more cotton than the North; but in the following years it lost this advantage, as the shifting market for a time favored the New England spinners. High cotton prices, in the present distribution of the industry, cause less disturbance to manufacturers of fine goods and prints than to makers of heavy sheetings and standard fabrics of the kind produced in the South. During the extremely low prices that prevailed in the nineties, cotton raising was so unprofitable that white farmers deserted this occupation for the towns, where their families found employment in

the mills. This combination of plentiful labor and cheap materials gave an extraordinary impetus to Southern factories. Now, however, the price of cotton is so high that farming pays better than mill work, and in some states the industry has outgrown the supply of local labor. Southern mill owners are even looking to Europe for operatives. At the same time manufacturing districts have outgrown the supply of local cotton, and are importing not only from distant states, but even for particular purposes from foreign countries. Accompanying these new conditions is a change in the character of the goods manufactured. These states may remain for an indefinite period the main producers of heavy cottons, but they probably will not continue so exclusively devoted as hitherto to this one branch of the industry. Prior to 1880 hardly any yarns were spun in the South finer than number 30; about 1885 some factories began to spin 40's; in 1890 a mill was started to make numbers as high as 80 and 100, and at present several Southern establishments manufacture fine yarns and fabrics.

Before 1880 few cottonseed oil mills were operated in the South outside of the Mississippi Valley and Texas, but within the next five years the industry extended rapidly throughout the cotton country, and the capital invested more than trebled. Although in 1884 and 1885 the business suffered from overproduction, mills continued to be erected, especially in Alabama and the South Atlantic states. The growing output, by lowering prices, forced the oil into new uses and markets.* In soap manufacturing it displaced tallow, though the price of the latter article fell 40 per cent. in face of this new competition. Large quantities of oil were sent to Europe at 2½ cents a pound.

* See article, "Cotton Production in the South."

Attempts were soon made to monopolize so new and promising an industry. In 1886 the cottonseed oil trust was organized, with $20,000,000 capital, and was reported to control every desirable mill west of the Mississippi and 60 per cent. of the mills in the country. The following year the Southern Cotton Oil Company, with $5,000,000 capital, was formed in New Jersey, and followed the policy of building new mills rather than of combining old ones. The first year of its organization it practically completed 8 factories, with a daily crushing capacity of 1,600 tons of seed. But these large companies did not prevent the formation of independent local enterprises, and all these competitors hastened to occupy strategic points for manufacture without obtaining exclusive control of any particular field. This resulted in rapidly extending and developing the industry. The census of 1890 reported 114 different establishments in the South, with a capital somewhat over $12,000,000. The effect of the panic, three years later, was not immediately felt, and in the midst of it one mill declared a dividend of 52½ per cent. Two firms of Chicago packers, in order to assure themselves independent supplies of oil, established a large factory at Little Rock. But in the autumn many mills, having bought large stocks of seed at high prices, suffered from the shrinkage of values that ensued. In 1894 the Southern Cotton Oil Company lost money on the year's operation; but the trust paid its usual dividend of 6 per cent. on its preferred stock and carried a small sum to surplus. The Texas mill owners formed a crushers' association, following an example set three years earlier by some of the Arkansas mills, with the object of fixing the price of seed. They were prosecuted as a trust by the state attorney-general. About the

same time the big cottonseed oil trust was prosecuted in several states. Depression and general disorganization continued through 1895, though in the meantime several new and important mills were started. The low price of seed diverted it from the crushers to cattle feeding and to use as a fertilizer, and the oil output fell off a half million gallons. But the following years witnessed a rapid recovery. In 1900 the number of mills in the South was 164, not a large numerical increase for the decade; but the capital invested had risen from less than $12,000,000 to nearly $34,000,000, and the value of product had grown from $19,000,000 to $58,000,000. Large factories were now the rule, one establishment having easily now the output of three fair sized mills of ten years before.

Attempts continued to be made to consolidate mills and to centralize ownership and administration. A corporation with $6,000,000 was formed to absorb a number of factories in Mississippi, Louisiana and Texas. Another New Jersey corporation, with twice this nominal capital, was organized to take over other mills or minor combinations. The Southern Cotton Oil Company, together with a large number of independent mills in the South Atlantic states, passed into the hands of the Virginia-Carolina Chemical Company.

All the previous records of this industry were exceeded by the growth between 1900 and 1905. During 1903 alone 150 mills were commenced or put in operation. The crushing capacity in some districts was greater than the prospective supply of seed. At the close of 1904, according to the census reports, 715 mills—nearly double the number five years before—were running in the United States, of which only five were outside of the South. Since 1900 the capital invested in this in-

dustry had increased from $34,000,000 to $73,000,000, and the value of product from $58,000,000 to $96,000,000. Texas, Georgia, Louisiana, Mississippi, in the order named, were the leading states in this manufacture. The product found a market in all parts of America and Europe, and entered into uses that multiplied as rapidly as the supply increased.

Fertilizers are a by-product of the manufacture of cottonseed oil, and the growth of the latter industry has been accompanied by an extension of the former. A logical association of industries caused the absorption of many oil mills by the Virginia-Carolina Chemical Company, which manufactures fertilizers. But a more important influence towards giving the South first place in the latter industry, and incidentally towards giving it prominence in other chemical manufactures, has been the discovery of phosphate rock successively in South Carolina, Florida, and Tennessee.* The manufacture built up at an earlier day in Baltimore, upon the basis of imported guanos, adapted itself to these new materials so successfully, that up to 1900 Maryland made more fertilizers than any other state. Between 1900 and 1905, however, Georgia, being nearer phosphate and pyrites mines, outstripped the other states, and nearly trebled the value of its product, which rose to $9,243,000. That state now led Maryland, which took second rank, by more than $2,500,000.

In the manufacture of fertilizers phosphate rock is reduced by sulphuric acid, and the increase of the former industry has encouraged the erection of acid works in its vicinity. An important influence favoring the growth of the latter manufacture has been the substitution of pyrites, from Southern

*See article "The Production of Phospate Rock in the South."

FERTILIZER PLANT, PENSACOLA, FLORIDA.

mines, for imported brimstone. In 1892 alone three works at Atlanta, one at Charleston, two at Richmond, and three at Baltimore, began to make acid directly from the ore. Since then this business has largely increased, most of the plants in this section either serving directly or forming part of fertilizer works.

Some older staple industries of the South have declined, either absolutely or in comparison with their present importance in other parts of the country, as these newer manufactures have arisen. Though the flour made in Virginia still is more valuable than the product of any other manufacture, that state has lost its old rank in national milling statistics. Kentucky and its southern neighbors have seen distilling decline to minor importance within their borders, and become centralized in the vicinity of the great Illinois grain market. But the production of turpentine, while shifting location, is confined to the South, and various branches of tobacco manufacturing continue to have their home in this section.

North Carolina, which until the middle of the century made most of the turpentine and rosin produced in the United States, lost precedence in this industry shortly after the war. Since then the center of production has moved south and west, following the yellow pine belt from which it derives its materials. At present Florida and Georgia are the largest manufacturers, and Alabama and Mississippi have nearly four times the combined output of the two Carolinas. Large distilleries, especially in Florida and Mississippi, are replacing the smaller and cruder plants of earlier days. Less wasteful methods of winning materials and of manufacturing have been adopted as plants have improved, and economy of production has

been studied, so that despite our waning forest wealth the output has risen since 1880 from less than $6,000,000 to nearly $24,000,000.

In 1880 Virginia manufactured one fourth of all the chewing and smoking tobacco and snuff made in the United States, and nearly as much as any other two states combined. Here was the traditional centre of an industry more ancient than the independence of the commonwealth. During the following decades Missouri took precedence of Virginia; but the industry moved southward, the proportion of the total product manufactured in this section rising from about one-half to nearly two-thirds. In North Carolina no other branch of manufacture grew so rapidly. It centralized in the vicinity of Durham, a town created by this industry, to which it attracted also factories for making the cotton bagging used for tobacco packages. Smoking tobacco, of which in 1900 North Carolina prepared more than any other state, was here the specialty. For the time being the manufacture of plug tobacco was centered at St. Louis, to such an extent that during the census year Missouri made more than double as much as its nearest competitor, Kentucky. North Carolina and Virginia followed next in rank, and these four states made nearly nine-tenths of the chewing tobacco produced in the Union. During the next five years the manufacture of plug tobacco in the country as a whole fell off, and Missouri was the state chiefly affected, though it still remained first in this branch of the industry. North Carolina added to its prominence as a tobacco manufacturing state by enlarging its plug output in the face of this general decrease, so as to take second rank above Kentucky, and at the same time nearly doubled its product of smoking tobacco, which during this pe-

riod had continued to expand throughout the country. In 1904 the state made an aggregate of over 70,000,000 pounds of smoking and chewing tobacco, in approximately equal amounts, or about one-fifth of the product of the United States.

The South has never taken such precedence in the manufacture of cigars and cigarettes as in the manufacture of other forms of tobacco. Two-thirds of the cigarettes produced in the United States are made in New York. But Virginia holds second place in this industry, with about one-third of the product of New York, while the third state in rank in the Union is Louisiana. The cigar-making of the South is centered in Florida, Virginia, and Maryland, all of which hold a leading position, though they are outranked many fold in number of cigars made by Pennsylvania, New York and Ohio, and they take second place to other Northern states. But in value of product Florida stands next to New York and Pennsylvania. The growth of this industry at Key West and Tampa is due to their proximity to Cuba, from which they draw both tobacco and labor, and to the higher duty on cigars than on the manufactured leaf. Virginia and Maryland make over 83 per cent. of the little cigars produced in this country. The distribution of the whole tobacco industry has been influenced chiefly by accessibility to primary markets; but some of the recent rapid changes in localization, and especially the concentration in single towns, are due to the control which the tobacco trust exercises over several branches of manufacture.

Although the most significant features of the recent economic growth of the South has been the rise of certain staple manufactures, this development has not been unfavorable to diversified industries. A mere enumeration of the leading groups of fac-

tory enterprises in this section, classified by their products, would be little more informing than a catalogue, while a description of them would exceed the limits of our discussion. In Baltimore, St. Louis, and the larger cities of the Upper South, the manufacture of clothing has become important. In Maryland it leads all other industries in gross value of product. St. Louis has become one of the principal shoemaking centres of America, with factories excelling those of New England in size and equipment, and rivalling them in quality of output. Dallas, Texas, looking westward over sheep and cattle ranges, has a large saddlery industry. Each growing city in the older South, and each rising town in the new Southwest, supports a group of urban manufactures supplying local needs. West Virginia makes glass, Alabama, Virginia and East Tennessee coke, while the prairie states, with their recently discovered resources of oil and gas for fuel, make brick and cement. In spite of climatic limitations Louisiana continues to compete with the tropics in the manufacture of sugar. Since the war the manufacture of woolen has centered in the North, but a few woolen and some silk mills are now in successful operation in the South. The climate makes the manufacture of ice more of a necessity than a luxury. St. Louis continues to draw from the western grain fields the materials that support its immense breweries. Baltimore and the neighboring Maryland counties remain a chief centre for canning, though Mississippi now puts up more than a third of the oyster product of the United States. At the line where industrial and intellectual progress meet, the printing press is extending its activity, and despite the tendency of periodical and book making, with the improvement of communication, to concentrate at New York, the

publishers of Richmond, Atlanta, and other Southern cities more than hold their own.

In the field of invention the South has contributed most signally to those machines and processes that have to do with agriculture. Profiting by the suggestion of a New Englander residing in the South for its first and fundamental principle, Southern makers have improved the cotton gin until at present it is an entirely different machine from its rude predecessor. The most radical advance in agricultural machinery during the last century came from the Virginia wheat fields, where Cyrus McCormick invented the harvester. To Riellieux, a Louisiana inventor, we owe the triple effect, one of the devices that has done most to economize and perfect the evaporation of sugar.

Great as its progress has been, the industrial growth of the South is too recent to permit of symmetrical development. North Carolina is the second state in the Union in the value of its cotton manufactures, and South Carolina is third; but in the value of all manufactures the former state ranks twenty-fifth and the latter thirty-first. Similarly, though Alabama stands fifth among the states in the manufacture of iron and steel, and second in the manufacture of coke, it stands twenty-eighth in the value of all the products of industry. Comparing the gross value of manufactures to the population, these disparities are accentuated. Neither has the South as a whole advanced faster in all manufactures than has the country as a whole. In 1860 this section—omitting Maryland and Missouri to comply with the census classification—had 17.2 per cent. of the manufacturing establishments of the United States, and 11.5 per cent. of the capital. In 1904 these figures were 15.3 and 11 per cent., re-

spectively. Between 1860 and 1904 the value of manufactures produced in the South rose from 10.3 per cent. of the total value produced in the United States to 10.5 per cent. But if we could compare in the same way the South east of the Mississippi with the North east of the Mississippi, leaving out of account the West, whose immense development since 1860 throws the comparisons just quoted out of balance, these percentages would be more favorable. And all such figures, though official and derived correctly from the data at hand, are subject to errors caused by the varying accuracy and the different classifications of successive censuses.

However these qualifications do not affect the central fact, that although the South takes high rank in several of the most important manufactures, and especially in textiles, whose high development ordinarily indicates an advanced stage of industrial progress, this change has not been accompanied by an equal gain of all manufactures relatively to the rest of the Union. This fact is rather to be accounted for than disputed, and upon closer examination is found to carry a different set of implications from those that might be hastily assumed. In the first place, for any section merely to hold its own in the total industrial activities of the country does not imply a stationary condition of manufactures, but rather one of remarkable progress. For between 1860 and 1905 the product of American factories increased nine fold. In other words, for every five years since the outbreak of the war the nation has upon an average added to the value of its manufactures an amount equal to the entire product of American industry in 1860. And of course for the South, with a comparatively fixed area, to have kept pace with the entire country, with its vast territorial expansion, is a still greater

achievement. In the second place, the relative industrial status of this section is influenced by changes in the organization and localization of industry that affect, not only the whole country, but even the entire world—and that are constantly changing the relative rank in manufactures of different districts of the North and West. The improvement and cheapening of transportation, the more extended application of power to manufactures, and the perfection of machinery, have centralized manufactures in particular districts. In other words, territorial specialization, though not entirely new, is becoming more characteristic of the distribution of industries. This is only a continuation of the process by which the mechanic's shop gave way to the neighborhood mill, and the neighborhood mill to the local factory. Now in turn the local factory yields to the distant factory centre. By this process the statistics of Southern manufactures have both gained and lost. Minor trades, that in earlier times swelled the aggregate of these figures, have now disappeared; and Southern households receive from distant establishments what was formerly supplied at their own doors or even within the family. The Chicago packing house supplants the plantation smoke house, the Northern oil refinery takes the place of the local tallow chandler. Since the war, tariff-protected industries, such as the manufacture of silks and worsteds, which became established in the North by the impulse of the war and before the South had recovered from the ravage of hostilities, have continued where they were founded. These have displaced in some instances older industries that were more dispersed. Besides, it is not improbable that the political influence of the Northern states has shaped fiscal legislation so as to give more prefer-

ence to manufactures peculiar to that section than to those peculiar to the South.

On the other hand, this tendency of industries to crowd into certain districts has favored the Southern states; for not only has it enabled these states to build up particular manufactures producing far beyond the capacity of their markets to consume, but it has encouraged industrial specialization, which is one of the most favorable conditions for technical progress. The high development of any industry is likely in time to attract allied occupations, by creating a trained operative class. The habit of making things is transmitted to coming generations, and specialized skill diffuses into a thousand new combinations of mental and manual adaptability. The dominant industry also calls into being subsidiary manufactures, either to supply its wants or by additional processes to complete and perfect its product.

Two-thirds of the manufactures of the United States are produced in cities; and in the South hardly 11 per cent. of the population is urban, as compared with 25 per cent. in the entire country, and over 40 per cent. in the older states of the North. It follows from this different distribution of population, that an important group of industries is necessarily centered in the Northern states. That section is more largely served with gas, for instance, and with electricity, with bakery products and prepared foods, with a multitude of common things which city dwellers must purchase because they cannot produce them on a farm or within the household. However, rural manufactures are growing faster than those of cities. Between 1900 and 1905 the ratio of increase of the former was 37.4 per cent., and of the latter but 26.6 per cent. Therefore, in the sectional distribution of industry, this disad-

vantage of the South—if a mere statistical eccentricity may be called a disadvantage—is growing less.

If it were possible to review in detail the entire complex of social and economic conditions, of which manufactures form but a part, so as to interpret thereby the causes for the relative extent and prominence of the latter in different parts of the country, we should probably find that they bore a close relation to transportation facilities and density of population. In 1850 the number of inhabitants per square mile in the Southern states east of the Mississippi was seventeen; in all the states east of the Mississippi, twenty-four; and in New England alone, forty-four. In the same part of the South each mile of railway had to serve 205 square miles of territory, in all the states east of the Mississippi, 100 square miles, and in New England alone but twenty-five square miles. In view of these conditions it is not surprising that in the part of the South mentioned the per capita value of manufactures was only $16, while in the states east of the Mississippi it was $45, and in New England $104, or that less than two per cent. of the people of the South were engaged in manufactures, as compared with 11 per cent. in New England. During the intervening years these relative conditions have persisted, appearing with slightly varying ratios at each decennial census. In 1900 the population of the South had more than doubled in density, rising to thirty-nine a square mile; but this was less, by five a square mile, than the density of population in New England fifty years before. Railways had been built in the South until there was a mile for every thirteen miles of territory, or about what New England had in 1870. Meantime the per capita value of manufactures had risen to $67, which was

about the average value in the states east of the Mississippi during the War of Secession. In 1900 the proportion of the entire population of these Southern states engaged in manufactures was 3.7 per cent. which was about the proportion in all the states east of the Mississippi in 1850, but these thirty-seven operatives per thousand people turned out half again more goods than did their predecessors of fifty years before. Neither in 1850 nor in 1900 did the value added to raw materials by processes of manufacture vary much in different parts of the Union, nor has it varied greatly during the half century. All these comparisons, however, do little more than show that the South was and continues to be mainly an agricultural region, where people prefer farming to factory work, and usually find it more profitable. The progress in manufactures has been rather a surplus of development, over and above the normal activities of the people, than a displacement of traditional occupations by new employments. The South has not, in this respect, followed the example of Great Britain and New England, where agriculture has been sacrificed to secondary industries.

In broader aspects Southern manufactures cannot be separated from those of the whole country, and the community of history and evolutionary principle that makes them an integral part of our national industry grows closer with each passing year. The same capital supports and the same business control governs kindred establishments in the North and South. The products of these establishments seek the same markets through identical channels. The same system of management and the same technical methods are followed in both sections. Associations of manufacturers covering the whole country meet to exchange ideas and to co-

operate in matters of common interest. Out of this interplay of influences arise two tendencies, at first sight seemingly opposite but ultimately working to the same end—the tendencies to concentrate and to specialize.* Industries become sectional territorially, but at the same time increasingly interdependent. New Bedford is the complement of Augusta, Birmingham of Pittsburgh. Pennsylvania declines in cotton, but if the competition of North Carolina silences its spindles, the soft yarns of that state supply its hosiery looms. So it happens that the New Industrial South preserves—even heightens—its individuality, but at the same time becomes more closely related than ever before to the re-

* *Statistical Note.*—The following tables show the gross value of Southern manufactures in 1890 and 1900, in comparative tables; and the gross value, according to the census classification of industries into groups, in 1905. The figures of 1905 are not directly comparable with those of preceding censuses, because for that date the inquiries of the agents were confined to factory manufactures. Handicraft industries are no longer, as they were hitherto, included in the census enumeration.

	1890	1900
Alabama	$51,226,605	$80,741,449
Arkansas	22,659,179	45,197,731
District of Columbia	39,331,437	47,667,622
Florida	18,222,890	36,810,243
Georgia	68,917,020	106,654,527
Kentucky	126,719,857	154,166,365
Louisiana	57,806,713	121,181,683
Maryland	171,842,593	242,552,990
Mississippi	18,705,834	40,431,386
Missouri	324,561,993	385,492,784
North Carolina	40,375,450	94,919,663
Oklahoma	180,445	7,083,938
South Carolina	31,926,861	58,748,731
Tennessee	72,355,286	108,144,565
Texas	70,433,551	119,414,982
Virginia	88,363,824	132,172,910
West Virginia	38,702,125	74,838,330
The South	$1,242,331,583	$1,856,219,899

Southern Manufactures, by Groups of Industries, 1905.

Food and kindred products	$467,000,000
Textiles	287,100,000
Iron and steel and their products	173,600,000
Lumber and its remanufactures	366,500,000
Leather and its finished products	78,300,000
Paper and printing	90,900,000
Liquors and beverages	75,100,000
Chemicals and allied products	237,000,000
Clay, glass and stone products	55,200,000
Metals and metal products, other than iron and steel	76,800,000
Tobacco	115,200,000
Vehicles	130,000,000
Shipbuilding	15,400,000
Miscellaneous Industries	84,000,000
The South	$2,252,100,000

mainder of the country. More complex in its own economy, it but multiplies thereby the ties that bind it to its neighbors. More served than ever before, it performs more varied and bounteous service for others.

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TRANSPORTATION AND COMMUNICATION.

RAILWAY TRANSPORTATION IN THE SOUTH.

IN 1865 the South possessed the wreck of the 10,000 miles of railroad which had been in operation or nearing completion at the time of the war's outbreak. All the embankments had been washed narrow by rain, the cuts and ditches were partly filled, the rails worn thin and splintered if not ripped up and wrapped round trees or thrown into the rivers, the crossties were mostly rotten, the depots and water tanks mostly in ashes, the bridges crazy or destroyed, the rolling-stock more fit for the scrap heap than for traffic, and the company treasuries empty except for worthless Confederate money. The rehabilitation of roadbeds, tracks, and equipment was an immediate problem with every company. Some of the companies whose roads had been main trunks in the ante-bellum time were largely free from debt, and in view of the prospect of heavy traffic in replenishing the exhausted South with the goods of the outside world, they were able to borrow enough money on their own bonds to restore their lines to working order. Prominent in this substantial group were all of the principal companies in the state of Georgia. The experience of the Central of Georgia company may be taken as

typical. Its track, extending from Savannah to Macon with branches to Augusta and Eatonton, had a total length of 281 miles. Of this Sherman's army, in November, 1864, destroyed 139 miles of track, together with bridges and depots, and the Confederate government afterward ripped up twelve miles more of rails from the Augusta branch for use upon another road of greater military importance. The Central company's repair force began work on the very heels of Sherman's army, but its work was sadly hampered by lack of materials until the reopening of commerce after Lee's surrender. In September, 1865, the directors authorized the issue of $1,000,000 in 7 per cent. bonds, of which about $700,000 were sold within the next six months, at prices rising with the passage of months from 15 per cent. discount to par. The relaying of the track was completed in June, 1866. Traffic was so heavy and rates so remunerative that the earnings of 1865-66 amounted to $1,734,749 gross and $721,800 net; and future betterments could easily be made without regard to the state of the bond market. In 1866-67 gross earnings were $2,286,067; net $910,686, with interest charges only $54,948. The company issued 10 per cent. in dividends ($466,680) that year and carried a comfortable sum to surplus account. There were similar earnings in the next three years. Then, with increasing competition by lines whose reopening had been delayed, the Central's gross earnings were reduced, although the rate of net earnings was sustained. After this point, 1872, the statistical narrative of this road becomes obscured by the absorption of connecting lines by the company and the merging of the original road into a "system."

The weaker companies of course had more trouble in rebuilding. Some of them were aided by the

Adams Express Company, acting through its controlled company, the Southern Express Company, by means of loans whose acceptance practically obliged the roads to give a monoply of express business along their routes to the Southern Express Company. In other cases, to a limited extent, city bonds or city endorsement of railroad bonds were devoted to railroad rehabilitation; and in more numerous cases and on a larger scale, resort was had to state bonds or state endorsements. In the first two or three years following the war this public activity was distinctly conservative. But about 1868 began the domination by carpet-baggers and scalawags, when radicalism became rampant. Public grants of money or endorsements to railroads did not stop at generosity, but proceeded at once to recklessness and corruption. The favorite practice was for carpetbaggers like Chamberlain in South Carolina and the Stantons in Alabama, financed by Wall Street brokers like Henry Clews, to buy up the members of the legislatures and the stocks of the corporations simultaneously. The legislatures would then vote millions of dollars in bonds or endorsements to the corporations, whose carpetbag officials would put most of the proceeds into their own or their confederates' pockets. The amount of state-endorsed liabilities placed upon the railroads in Alabama between 1868 and 1872, mostly for fraudulent purposes, was about $15,000,000 in 8 per cent. bonds; and the total amount in the whole South in the reconstruction period has been reasonably estimated at $100,000,000. Many Southern roads are to this day laboring under heavy debts imposed by the Reconstruction thieves. The régime of political spoliation was ended by the contemporaneous occurrence of the panic of 1873, which made securities unmarketable, and the recapture of the

several state governments by the conservatives who were opposed to the piling up of debts. The radical activity had added two or three thousand miles to the Southern railroad mileage, but most of the roads built in the period were badly located, flimsily constructed, and inordinately expensive. From 1873 to 1879 there was little increase in mileage, but in the following decade ambitious plans of construction were carried out. The principal activity of railroad officials in the seventies and early and middle eighties was the integration of systems, first through the absorption of weak roads by strong ones and later by the building of extensions into territory where roads were not to be bought or leased. The Baltimore and Ohio Company absorbed a group of lines radiating into the Middle West. The Chesapeake and Ohio Company, resulting from the merger in 1868 of the Virginia Central and the Covington and Ohio companies, after completing its line to the Ohio River in 1873, undertook a project, only partly accomplished, of buying or building lines to Louisville and Memphis, and thence to New Orleans, and even to the Pacific coast. The Norfolk and Western, replacing the Atlantic, Mississippi and Ohio Company in 1880, acquired branches to its main line in the mountains and valleys of Virginia and East Tennessee. The Richmond and Danville consolidated in 1881 a line from Richmond to Atlanta with several branch roads in Virginia and North Carolina. The Central of Georgia Company acquired lines radiating from Macon northward to Atlanta and westward and southwestward to numerous termini in Georgia and Alabama. The Savannah, Florida, and Western, later enlarged under the name of the Plant System, established a branching line from Savannah west and southwest to numerous points

in south Georgia and Florida. The East Tennessee, Virginia, and Georgia Company, established in 1869 by a consolidation of roads lying mainly in eastern Tennessee, watered its stock in the early eighties and secured precarious control of feeders reaching from Chattanooga to Meridian, Miss., and Brunswick, Ga. The Nashville, Chattanooga and St. Louis Company, with a more conservative capitalization, operated a main line from Chattanooga through Nashville to Hickman, Ky., with numerous branches in Tennessee, and stood ready to lease the Western and Atlantic road from the state of Georgia as soon as the twenty-year lease held by an independent operating company should expire in 1890. The Louisville and Nashville Company, ambitious, efficient and indefatigable, built, bought or leased roads until by 1884 it operated above two thousand miles, reaching, with numerous lateral branches, from Cincinnati through Louisville, Nashville, Birmingham, Montgomery, and Mobile to New Orleans. The Cincinnati Southern railroad, which was built between 1873 and 1880 as a public enterprise by the city of Cincinnati, was leased in 1881 by the Cincinnati, New Orleans and Texas Pacific Company, which established sympathy of interests with the Alabama Great Southern and other southwesterly lines, and led to the later integration of the Queen and Crescent system. The Mobile and Ohio Company continued merely to operate its single line from Mobile to Cairo. Except at its termini, themselves unimportant, this road in all its 500 miles of length touched no town of as much as 5,000 population. The company was barely able to earn the interest on its moderate-sized mortgage, and had no resources for expanding a system. The line running north from New Orleans through Jackson, Miss.,

to Cairo proved unprosperous when operated by the two independent companies; and these, the New Orleans, Jackson and Northern, and the Mississippi Central, defaulting on interest, in 1877 were combined in the Chicago, St. Louis and New Orleans Company, which was shortly absorbed by the Illinois Central Company. The line from Louisville through Memphis and Vicksburg to New Orleans, whose construction was undertaken at the beginning of the eighties under the joint auspices of the Chesapeake and Ohio and the Southern Pacific companies, was acquired a few years after its completion by the Illinois Central Company, and has been operated by it since that time in the name of the Yazoo and Mississippi Valley Company. In the trans-Mississippi region four main companies during the eighties were rapidly building systems ramifying westward and southwestward from St. Louis, viz.: the Missouri Pacific, the Missouri, Kansas and Texas, the Iron Mountain, and the Frisco. Further south, the Texas and Pacific Company built its line from New Orleans to El Paso between 1871 and 1882; but the Southern Pacific did not acquire its present lines in Louisiana and Texas until the middle eighties and later.

In all of this extension of systems there was no flagrant paralleling of old lines by new ones comparable to that of the West Shore and the Nickel Plate roads in the North in the period; and during the seventies there was remarkably little rate-warring from any cause. This immunity was secured largely through the institution by Mr. Fink in 1875 of a remarkably extensive and successful Southern pool. The administration of the pool or association comprised a central board and an umpire charged with the functions of adjusting rate differentials, enforcing agreements, apportioning

CAROLINA, CLINCHFIELD & OHIO RAILWAY.

1. Copper Creek Viaduct, 185 feet high and 1,160 feet long.
2. The Catawba River Viaduct.

net earnings among the companies, and serving as a clearing-house of inter-company business generally. With twenty-five companies in its membership, the pool maintained a firm organization until near the time when in 1887 the Interstate Commerce Act prohibited pooling associations. This was followed by a confused series of rate wars in the South and a great instability of rates until in the nineties a new device of securing harmony was applied; namely, the interlacing of financial control of the companies so that every important company would have an interest in the prosperity of every other important company and the railroads of the South would practically form a single solid interest.

In the late eighties and the nineties the principal consolidations were: 1. The Atlantic Coast Line, which combined the Wilmington and Weldon, the Northeastern of South Carolina, the Charleston and Savannah, the Plant System, and others to form a main line with many branches from Richmond through Savannah to Jacksonville, Tampa, and Montgomery; 2. the Seaboard Air Line, which combined the Raleigh and Gaston, the Carolina Central, the Seaboard and Roanoke and other roads and built the Georgia, Carolina and Northern, to handle traffic from Norfolk to Atlanta, Birmingham, Savannah, and Jacksonville; 3. the Southern Railway, of which more will be said below; 4. the Queen and Crescent Route, already mentioned; and 5. the Southern Pacific, which requires no description. In June, 1886, the tracks of all the broad-gauge railroads in the South were converted into the standard gauge of 4 feet 8½ inches, and this of course made it possible by running the same cars on different lines to improve the long-distance service of the roads. Sleeping-cars had

been run by the Central of Georgia Company before the war. After the war the more commodious Pullman cars were introduced in increasing extent, until at the present day hardly any road with through connections fails to handle them on daily schedule. The Central of Georgia, however, continues to run its own sleepers and parlor cars instead of Pullmans. The handling of through freight also has been enormously facilitated, as witness the great long-distance traffic in meat, fruits, and truck in refrigerator cars.

The parcels express business is handled almost entirely by separately organized express companies, which usually have contracts with the railroad companies providing for the payment by the express companies of from 40 to 60 per cent. of their gross earnings. The Southern Express Company has by far the larger part of the express business in the South, although in the border states and the Southwest the traffic is shared in extensively by the American, the United States, the Adams, the Wells Fargo, and the Pacific Express Companies.

The panic of 1893 bankrupted numerous railroad companies and promoted further consolidations. In particular, it crippled the Richmond and Danville and the Richmond Terminal companies, which together controlled the Piedmont Air Line from Washington to Atlanta, the East Tennessee, Virginia and Georgia, and a job lot of scattered bankrupt roads, and which had recently acquired also a majority of the stock of the Central of Georgia Company. This wretchedly tangled mass of securities was referred to the financial repair shop of Drexel, Morgan & Co., in Wall Street, to be straightened out. Thence duly emerged the Southern Railway Company, consolidating nearly all the roads in question (except the Central of Geor-

gia) in a single corporation, with securities immensely watered, but with the water mostly in the shape of stock, and not in bonds. The company has since been able to meet its interest charges, and for some years to pay dividends on its preferred stock. The Central of Georgia emerged as a separate company, with several formerly subsidiary companies now completely merged in the main corporation, and without any radical increase in its already unduly full capitalization. The former stocks of the main and subsidiary companies were now replaced partly by the stock of the consolidated corporation, but more largely by its first, second and third income bonds. In this way the control of the road was divorced from its income-bearing securities in a way which thus far seems very unfortunate. Since 1895 all of the principal Southern companies have been making betterments actively and in every department, acquiring stouter cars, more powerful engines, and heavier rails, ballasting their tracks more thoroughly, laying second tracks, and in some cases, like that of the Louisville and Nashville, straightening their curves and lessening their grades. The Southern Railway and the Central of Georgia, along with several other overcapitalized corporations, have been sadly hampered in their betterments.

Since 1900 the building of new tracks in the South has been directed more generally to the connecting up of routes and the building of local feeders than to the construction of new systems. The only large new projects, in fact, have been three conspicuous one-man undertakings: the Deepwater-Tidewater Railroad, financed by Mr. H. H. Rogers, the Atlanta, Birmingham and Atlantic, by Mr. H. M. Atkinson (both of these intended mainly as coal roads), and the unique ocean-going Florida East

Coast Railroad, now nearly completed to Key West, by Mr. Henry M. Flagler.

The fact that the main bulk of Southern territory is surrounded on three sides by navigable waters, the Atlantic, the Gulf, and the Mississippi, and that there are minor lines of navigation to numerous points in the interior of the South, has had great influence in limiting the scale of freight rates and determining their local adjustments. The presence of water competition in many of the long-haul routes of heavy traffic and its absence in most of the short hauls has led to the peculiar basing-point system of rates. In this, the sea-ports, the river towns, and some other cities and towns of advantageous location in railroad strategy have been established as basing-points, each of which enjoys a relatively low rate on through traffic from all other basing-points. The rates for any town not a basing-point are determined by adding together the local rate to or from a neighboring basing-point and the origin or destination of the goods whose shipment is contemplated. This system tends to concentrate commerce and manufacturing in localities which enjoy the advantage of being basing-points; and it is subject to some degree of abuse in the shape of unreasonable discrimination between localities. Both passenger and freight rates have undergone very substantial decline in the period since 1865, with the decline hastened in recent years by the action of Federal and state railroad commissions. An exception to this decline are the rates upon fertilizers, which in the fifties and sixties were made phenomenally low by the Central of Georgia and neighboring lines, in order to increase the bulk of crops to be moved from their territory. Rates in general in the South have never been excessively high. The sparseness

TERMINAL STATION, ATLANTA, GEORGIA.

of the population keeps passenger traffic light as compared with that in the North or in Europe; and the lightness of the cotton crop, as compared with the standard crops of corn, wheat or hay in the Northwest limits the possible earnings from freight. Even the coal-carrying roads in the South have never been particularly profitable. The principal complaint against freight rates affecting any large expanse of territory has been that of the lumbermen of the Gulf coast in demand of rates to the Great Lakes region which would enable them to send their product thither in favorable competition with Canadian lumber. The most serious grievances arising from city discriminations have been and still are those felt by Chattanooga at the more favorable rates of Nashville and Atlanta, by Charleston at the better treatment of Savannah, by New Orleans at the favoritism shown Galveston and Gulfport, and by Baltimore at the discrimination against her in favor of Philadelphia and New York. The railroads of the South, with their mileage increased to about 40,000 in 1910, and their capitalization at some $4,000,000,000, do a very great business and have rendered very important service to the community. But they have never been nearly so vital to the general prosperity of the South as to that of the West or of the central United States. They have but slightly extended settlement except in the Texas region; they have caused as much emigration as immigration; they have cheapened transit, but not in such way as to affect profoundly the industrial régime or the wealth of the community; they have promoted the development of few industries on a large scale which would not have developed without them, and have brought outside producers into deadly competition with some local enterprises

which it would have been well to foster; they have intensified the dependence of the staple districts upon their staples and increased the tendency toward the overproduction of the staples, the glutting of the world's market for them, and the consequent diminution of Southern earnings. On the other hand, the railroads have enormously increased the speed of transactions, the security of commerce and the conveniences of life.

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STREET RAILWAYS IN THE SOUTH SINCE THE WAR.

AFTER the termination of the War of Secession the interrupted development of street railroad lines, which had made scarcely more than a mere beginning, was resumed as fast as the southern cities gradually recovered from the demoralizing and exhausting effects of that hard-fought contest.

In 1880.—The earliest comprehensive data at hand relate to the year 1880, being found in the reports of the Census, and while these data do not present anything like a complete picture of what had been accomplished in the first fifteen years of peace, we find in them ample evidences of progress. Balti-

more then had four street railway lines in operation, the mileage of which is, however, not given. The city of Louisville had fifty miles of street railway, Charleston twenty miles, Memphis fifteen miles, Dallas ten miles. In New Orleans the mileage reported reached the surprising total of 140 miles. This, however, included three lines using steam dummies. Street railways had made their appearance in many other Southern cities, including Lynchburg, Norfolk, Richmond, Covington, Chattanooga, Augusta, Savannah, Selma, Austin, Dallas, Houston and San Antonio. Probably the aggregate length of street railways in the South in 1880 was something over 350 miles.

From 1890 to 1902.—In 1890, according to the Census report, the street railway mileage in the South had increased to 1,239 miles. This total is that for the South Atlantic and South Central states which include, in addition to the states lying south of the Ohio and Potomac rivers, the states of Delaware and Maryland (with the District of Columbia) and, west of the Mississippi, the states of Louisiana, Texas and Arkansas. The above total refers to the aggregate length of street railway lines. The total number of miles of track was 1,580. The difference between these two totals would indicate that about 340 miles of line was double tracked. The next Census report on street railways is for the year 1902. By that time the aggregate length of street railway lines in the South amounted to 2,202 miles, while the total trackage was 2,993 miles, the difference representing probably about 790 miles of double tracked lines. Thus in an interval of twelve years the street railway mileage in Southern states had increased nearly 80 per cent. and the total trackage had increased almost 90 per cent. In the meantime an almost revolutionary change in the equipment and use of street

railways had taken place through the application of electricity as a motive power. In 1890 two-thirds of the street railway mileage in the South was operated by animal power, either horses or mules, the other third being either electric, cable, or steam lines. But by 1902 the horse car had become a thing of the past. Out of a total street railway mileage of 2,202 miles in the entire South, there were only thirty-one miles reported as using animal power. The street railway system of the South, like that of the entire country, had become electrified.

Application of Electricity.—A Southern city may fairly claim the distinction of being the pioneer in the application of electricity to street railways. "It must be admitted," says the Census report of 1902, "that the modern era in street railway work dates as much from the equipment of the street railway system at Richmond, Virginia, by Frank F. Sprague, as from any other landmark in the history of this industrial development."

In 1887 Mr. Sprague signed a contract for the equipment of the Union Passenger Railway at Richmond with not less than forty cars to be operated by the overhead trolley wire. The grades in that city were such as were generally believed to be beyond the climbing capacity of any electric vehicle. But after considerable experimental work and various troubles and disasters, the road was opened on Feb. 1, 1888, and soon proved to be a recognized success, attracting attention in all parts of the United States. Upon observing the operation of the Richmond street railways, the officials of the West End Railroad of Boston at once decided to abandon the project of introducing cable lines and adopted the trolley system instead. In the South cable lines scarcely made their appearance before they became practically obsolete.

Recent Development.—The growth of street railways in the South in more recent years is measured by comparing the figures for 1902 with those for 1907, the latter having just been compiled by the Census Bureau. The comparison shows that the length of street railway lines in the South increased from 2,203 miles in 1902 to 3,128, in 1907, which indicates the construction of about a thousand miles of street railways in this brief interval of five years. The total trackage increased from 2,993 miles in 1902 to 4,207 in 1907. Comparison of the total trackage with the total length of lines indicates that there were about 1,200 miles of double-tracked line in 1907 as compared with 790 miles in 1902 and 340 miles in 1890.

Another indication of the rapid development of street railways in the South is found in the number of passengers carried. From 199,652,200 in 1890, the number of passengers increased to 507,302,402 in 1902, an increase of 250 per cent., and during the next five years, the number was nearly doubled, being 902,207,154 in 1907. If we compare these figures with the total population in the South, we find that in the year 1890 the average number of rides per inhabitant was ten, and in 1907 this had increased to thirty-two. If the comparison is confined to the urban population, the average number of rides per inhabitant was seventy-eight in 1890 and 229 in 1907.

The statistics of the capitalization of street railways in 1890 were far from complete. The Census statistics for that year show $30,911,698 of capital stock, and $14,483,767 of bonds, for the street railways of the Southern states. For 1902 and 1907 the reports are essentially complete. In 1902 the capital stock issued by the street railways of this section was $131,757,971, and the funded debt outstanding was

$158,326,008. In 1907, these figures were respectively $246,973,779 and $255,371,476.

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HIGHWAYS AND IMPROVED ROADS IN THE SOUTH, 1865—1910.

THE attention of the South for many years after the Civil War was concentrated entirely upon recovery from its terrible economic losses, and the subject of roads was left to a time when a greater need for roads would make itself felt. Not until 1885 did agitation for good roads again assume proportions worthy of note. About this time, the people of the South, as elsewhere, began to realize that the presence of bad roads was a most decided loss in many respects.

The movement was evidenced by numerous road conventions held throughout the country, as the Virginia Good Roads Convention at Richmond, Virginia, in 1894, the Roads Convention at Houston, Texas, in 1895, and the National Road Parliament at Atlanta, Georgia, in 1895.

The Office of Public Roads, established in the Department of Agriculture in 1893, has been an important factor in arousing public sentiment throughout the South, and in introducing proper methods of road construction and maintenance. A number of object-lessons in road building have been given in practically every Southern state, and these have frequently formed the nuclei of exten-

sive systems of improved roads. A movement for state participation in road improvement found concrete expression in the enactment of a state-aid law by New Jersey in 1891, providing for state supervision and state aid in the building of roads. Since that time about thirty states have adopted the principle of state participation, some of them to the extent of making appropriations to be expended under the direction of State Highway Departments; others providing departments merely advisory and educational in scope, and others rendering aid in the form of convict labor or materials prepared by convicts. This wise and progressive policy has been adopted in the South up to the present time by the states of Maryland, Virginia, West Virginia, North Carolina, and Georgia. Virginia provides both cash appropriations and convict labor; Maryland has provided for a state bond issue to build a trunk line system of roads entirely at the cost of the state, and to be maintained completely at the cost of the state. West Virginia has provided for the use of convicts on the roads, and for a state fund derived from automobile licenses and fines, the hiring of convicts, and a one-cent tax on every $100 valuation of real and personal property. North Carolina has made an appropriation which is devoted to advisory and investigative work, while the state convicts are utilized for road building in the various counties. Georgia has provided for the use of its entire convict force on the public roads.

In general, the progress of the South in road improvement has been mainly due to the enterprise displayed by individual counties. The most popular form of road revenue within the past ten years has been the issuance of county bonds. This activity on the part of counties was particularly in

evidence during the year 1909 when over $20,000,000 in county bonds was voted.

A hopeful sign for the future of roads in the South is found in the almost unanimous advocacy of their improvement by the public press. Many of the most influential newspapers are conducting thorough campaigns in support of this important enterprise.

The points of weakness in systems of road administration in the Southern states are gradually being eliminated. These are in brief, extreme localization, unskilled supervision, the payment of road taxes in labor, the unwise and inequitable distribution of improvements, and finally the absence of any system of continuous maintenance. The gradual adoption of the principle of state participation is overcoming the tendency to extreme localization, while the educational propaganda, which has been continually pressed during the past ten years, is bringing about reforms in road laws and administration which will provide skilled road builders in charge of county work, the payment of road taxes in cash, the proper classification of the roads to insure a wise distribution of the improvements, and the setting aside of an adequate sum annually to provide for continuous and effective maintenance.

Florida has an internal improvement fund in which are placed the proceeds resulting from the sale of swamp and overflowed land granted to the state by the United States, under an act of Congress of 1850. This fund is distributed among the counties according to their assessed valuation of property, and the money thus appropriated can be used solely for the construction of hard-surfaced roads. There has been no state appropriation.

In Maryland the appropriation is $200,000 an-

nually, and the state and counties share equally the cost of roads built under the state-aid law. In 1900 the legislature provided a bond issue of $5,000,000, not more than $1,000,000 of which was to be spent annually, and the whole to extend over seven years, beginning in July, 1908. This money is to be expended independently of the counties.

A war claim of $475,198.13 was paid by the United States government to Missouri, and distributed, without restriction, by the legislature of that state to each of the 114 counties in it. In 1907, Missouri adopted several new road laws, providing, among other things, for a fund to be known as the "General State Road Fund," constituted of all moneys accruing to the state from any general or specific levy of taxes for road purposes, or from any other source. This sum was to be distributed to the various counties in proportion to the assessed valuation of property. In 1907, in addition to an appropriation of $500,000 for roads, $12,000 was set aside for the support of a state highway department.

In North Carolina, the commissioner of agriculture and the state geologist are authorized to act as a highway commission, and the duties of this commission are investigative and advisory. The state does not aid in road building by appropriations.

In Virginia, no money is appropriated, but state convicts are furnished to the counties for road work. The state pays for the surveys, plans, specifications, estimates, and for the transportation, food, clothing, and guarding of the convicts, while the county furnishes the materials, tools and teams, and pays the salary of a civil engineer appointed by the state highway commissioner.

In West Virginia, the appropriations made since 1907 have not been for the construction of roads, but to carry out the provisions of an act passed by

the legislature, Feb. 19, 1907, authorizing the governor to appoint a state highway inspector to serve for two years, investigate road conditions and the methods of road administration throughout the state, make a report thereon, and prepare and distribute state bulletins.

The following tables show the taxes and bond issues of the Southern states in 1904, the taxes from 1907 up to date, and the bond issues which were made from March to September, 1909. These give a fair average of what is being done. Additional information along these lines has not yet been compiled.

EXPENDITURES IN 1904 AND 1909.

	1904 by Counties, Townships, Districts.				1909
	Prop. and Poll Cash Taxes.	*Labor Taxes.*	*Bond Issues.*	*State Aid.*	*Mar.-Sept. Bond Issues.*
Alabama	$378,039.77	$1,198,394.50	....	..	$850,000
Arkansas	681,933.80	713,409.00	....	..	....
Florida	437,184.10	140,393.00	....	..	1,600,000
Georgia	894,936.33	1,185,936.00	....	..	2,110,000
Kentucky	1,161,194.03	987,495.00	....	..	....
Louisiana	345,451.86	606,421.00	....	..	298,000
Maryland	873,470.50	....	....	..	....
Mississippi	339,669.45	1,335,816.00	....	..	310,000
Missouri	1,570,801.29	798,171.50	....	..	....
N. Carolina	624,380.78	734,306.45	....	..	1,640,000
Oklahoma	*447,319.59	*327,456.00	....	..	1,750,000
S. Carolina	334,081.90	411,619.60	....	..	....
Tennessee	386,013.85	892,635.75	$343,127.55	..	3,022,000
Texas	1,607,216.70	1,594,545.00	936,395.79	..	5,000,000
Virginia	687,751.06	....	....	..	1,196,000
W. Virginia	587,870.28	305,415.00	....	..	180,000

* Not including Indian Territory, 1904.

EXPENDITURES OF SOUTHERN STATES ON ROADS FROM 1906 TO 1909.

	State Highway Dept.	*State Convict Road Force.*	*Fees Devoted to Convict Rd. Force Fund.*	*State Aid.*	*Total Appropriation.*
Virginia—					
7-1-06 to 3-1-08..	$16,000	$50,000	$8,314.81*a*	*b*.....	.....
3-1-08 to 3-1-10..	14,800	85,000	10,566.85*c*	.....	.....
3-1-09 to 3-1-10..	.....	65,000	.....	$250,000.00	$499,681.66*d*
Missouri—					
Up to 1907.....	.....	.....	.....	$975,198.13	.....
Maryland—					
1905.....	.....	.....	.....	$200,000.00	.....
1906.....	.....	.....	.....	200,000.00	.....
1907.....	.....	.....	.....	200,000.00	.....
1908–14.....	.....	.....	.....	5,000,000.00*e*	5,600,000.00*f*
W. Virginia, Year end Sept. 30—					
1907.....	.....	.....	.....	$5,350.00	.....
1908.....	.....	.....	.....	3,900.00	.....
1909.....	.....	.....	.....	1,183.33	10,433.33*g*

a. To Oct. 1, 1907. *b*. State to pay one-half cost. *c*. Oct. 1907 to Oct. 1908.
d. July 1, 1906 to March 1, 1910. *e*. For seven years. *f*. 1905–1914. *g*. 1907–1909.

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TRANSPORTATION BY WATER IN THE SOUTH.*

THE Civil War seriously crippled the transportation systems of the South, especially the railroads, but the coastwise trade continued to be carried on in sailing vessels and steamers, and traffic on the Mississippi River and some of its larger tributaries assumed important proportions. Several new commodities, including phosphate rock and petroleum, have been added to the list of Southern shipments to the North, and a large proportion of these is transported by water. The period since the Civil War is also noteworthy in the shipping industry for the increase in the size of coastwise steamers plying between Northern and Southern ports, which has not only reduced the cost of transportation, but popularized

* See also article "Water Transportation and the Progress of the South."

these routes for passengers. All the important South Atlantic and Gulf ports are now connected with North Atlantic ports by lines of steamers with frequent sailings, which carry both merchandise and passengers. Among the more prominent of these are the Clyde Line, connecting New York with Charleston, South Carolina, Wilmington, North Carolina, Georgetown, South Carolina, and Jacksonville, Florida; the Mallory Line, running from New York to Key West and Tampa, Florida, Mobile, Alabama, and Galveston, Texas; the Morgan Line, whose vessels ply between New York and Galveston, Texas, and New Orleans; the Old Dominion Line, connecting New York and Norfolk, Virginia; the Savannah Line, whose boats run between Savannah, Georgia, and the ports of New York and Boston; and the Merchants' and Miners' Line, connecting Baltimore with various Northern and Southern ports. In addition to these larger lines, there are smaller ones on Chesapeake Bay and other arms of the sea. Many of these lines have been in operation for years and serve numerous communities either directly or in connection with railroads.

For about twenty years after the Civil War the Mississippi River steamboats running between Memphis, Tennessee, and New Orleans, did a thriving freight and passenger business and barges plying the lower Mississippi carried down quantities of grain destined for European markets. But with the growth of Southern railway systems, and for other reasons, this great river as well as many of its tributaries has lost its cotton and grain trade, while the passenger business is practically a thing of the past.* Both the Ohio and the Mississippi, however, have been able to hold the business of transporting coal and logs, which are carried for long distances at very

* See article "Water Transportation and the Progress of the South."

low rates. Besides the barge lines operating on these streams there are prosperous steamboat lines. Steamboat lines also ply the Cumberland, Tennessee, Great Kanawha, Tombigbee, St. Johns, and other rivers.* As shown by the Census Report on Transportation by Water, 1906, these vessels, especially steamers, are more and more coming to be owned by corporations. The same report also shows a decline in the commerce of the Mississippi and of various other streams as well as of that of the canals in the South. Six years prior to the last Census Report on Transportation by Water, testimony similar in character had been given before the Industrial Commission and complaints were made in respect to the high rates of marine insurance, defective methods of delivering freight from river boats, and unfair methods of railroad competition. The Census Report of 1906 showed further that the vessel tonnage of the Mississippi in that year was less than at any time since 1831. Interesting features of recent developments in river navigation were then pointed out to be the growth in the use of gasoline boats and the extensive employment of unrigged craft. While much progress has been made during recent years in the South Atlantic and Gulf coastwise trade, the South is neither a builder nor owner of ships on a large scale. But steps in both these directions have recently been taken at a few Southern ports, particularly at Baltimore and Newport News.

Interest in water transportation at the South since 1865 has centered largely in its alleged influence on railroad freight rates. The abundant facilities for this method of moving traffic have led to wide demands for river improvements, which the government has undertaken on all the larger streams of the South, notably on the Mississippi. By deepening the

* *Official Railway Guide*, 1909, xvii–xix.

channels of approach to Southern harbors the government has also greatly increased the possibilities of transportation by water. One of the most notable works of this description is the improvement at the mouth of the Mississippi known as Eads Jetties.

The government has also constructed or improved canals and has canalized several Southern rivers by means of locks and dams, and by Act of Congress, tolls on such Federal improvements, throughout the United States, have been abolished. Finally, important changes in the relations between rail and water carriers at the South have taken place since the close of the war and various measures enacted by state legislatures and Congress have very much affected all forms of transportation. Immediately after the close of the Civil War it was found that in the crippled condition of the South there were more railroads than business, and the situation was further complicated by the presence of the various coastwise lines. Unregulated competition ran its course with all its varied accompaniments, including cut rates, drawbacks, rebates, and other devices. Several attempts at combination were made, and finally, in 1875, all the important railroads and coastwise lines serving Southern territory were organized under an association known as the Southern Railway and Steamship Association. Its prime object appears to have been to regulate undue competition.* Annual meetings were held, officers and committees selected, and efforts made to distribute business. The affairs of the association were unusually successful until the passage of the Interstate Commerce Law of 1887, which prohibited, among other things, pooling. This feature of the association was abolished and the organization flourished until the depression of 1893, when competition became so keen

* Ripley, W. Z., *Railroad Problems*, 98–122.

that it was impossible to control the members, and the association fell to pieces. Shortly afterwards the Southern Freight Association* was formed.

Other features of the Interstate Commerce Act were the requirement that joint rail and water rates on interstate traffic should be filed and that carriers should not charge more for a short than a long haul in the same direction, the short being part of the long haul. These provisions have led to various decisions of the Interstate Commerce Commission and of the courts. Of these the most important to the South was the decision in the Alabama Midland case which practically decided that railroads might disregard the so-called long and short haul clause when in competition with carriers by water.†

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DEVELOPMENT OF THE MERCHANT MARINE IN THE SOUTH.

PRIOR to the war, the South devoted its energies to the production of commodities like cotton, tobacco and rice, which entered extensively into our coastwise and foreign trade, but the merchant marine

* Johnson, E. R., *American Railway Transportation*, 241.
† Alabama Midland Case, 168 U. S. 144 (1897).

which carried these articles to market was owned chiefly in the Northern states. In 1860 only 14 per cent. of the country's tonnage engaged in the foreign trade, and 23 per cent. of the tonnage operated in the coastwise trade, was documented in the Southern states.

Since 1860 the relative position of the South as regards ownership of the American Merchant Marine has not improved. The documented tonnage statistics for 1907, credit the Southern states with only 66,730 "registered"* tons, or a little over 5.7 per cent. of the country's total, and with only 596,759 "enrolled"† tons, or less than 10 per cent. of the total.

The reasons for the decline in the registered tonnage of the South are the same as those which brought about the decline of the entire American merchant marine engaged in foreign trade, from the magnificent total of 2,546,237 tons in 1860 to only 871,146 tons in 1907. Owing principally to the introduction by England of iron as shipbuilding material and coal as fuel at a time when the United States had not yet developed its iron and coal resources, and when the country was particularly absorbed with the development of the interior, the American wooden ship, which had been so prominent a factor in international trade, began to feel the weight of English competition. Shortly after England's introduction of the iron steamship came the War between the States, with its heavy taxation of American shipping, with the practical cessation of the cotton trade, with the transfer by sale to foreign countries of a large proportion of the American tonnage, and with the general demoralization of shipping through loss of trade or through capture and

*Registered Tonnage denotes tonnage engaged in the foreign trade.
†Enrolled Tonnage denotes tonnage engaged in the coastwise trade.

destruction by Confederate cruisers. This period offered Great Britain the opportunity to capture the carrying trade of the world, in which effort she was materially assisted by British marine underwriters, who were consciously pursuing a policy of giving preference to British ships through inspection and classification at Lloyds, and through these channels in the fixing of insurance rates. Foreign countries have also been able to build and operate vessels much more cheaply than can be done in the United States. The combined effect of all these factors, operating at the same time, was to give Great Britain a foothold in the carrying trade which we have not been able to regain, and led to a decline of 65 per cent. in the registered tonnage between 1860 and 1907, the South's proportion falling from 93,352 to 66,730 tons.

Fortunately the coastwise trade of the United States was not open to this foreign competition, because of the Act of March 1, 1817, which closed this trade to foreign vessels. Its growth, therefore, has been most gratifying, as is shown in the increase of enrolled tonnage from 2,752,938 in 1860 to 5,954,706 tons in 1907. The South, however, has shared this increased tonnage to only a very limited extent, its documented enrolled tonnage increasing from 395,325 tons in 1860 to only 596,759 tons in 1907.

The reasons for this moderate increase are to be found largely in the changes, which have taken place since the war, in the character of the merchant marine and in the nature of its ownership. In the days of the wooden vessel, ownership by the merchants was common. To-day, however, over 60 per cent. of our total tonnage consists of steamships, and most of the vessels are operated as part of a fleet. Corporate ownership, therefore, with its advantages of combined capital, has gained rapidly, at first in

connection with steam vessels and more recently in connection with sailing vessels and barge lines, until to-day less than 10 per cent. of the country's shipping is owned by firms and partnerships. Moreover, the tendency for these corporations has been to become larger and larger through consolidation, and many of the steamship lines connecting with Southern ports are controlled, through stock ownerships, by the leading railroad systems of the East and South. It should also be stated that most of the through packet lines connecting with the South are domiciled in the Northern states, and that the local South Atlantic and Gulf packet lines are relatively small. Thus the recent report of the Commissioner of Corporations on *Transportation by Water in the United States* shows that the thirty-five South Atlantic and Gulf packet lines have a combined stock and bond issue of less than $1,000,000, whereas the thirteen through packet lines on the Atlantic coast and sixty-four North Atlantic packet lines have a combined stock and bond issue of nearly $144,000,000.

On the Mississippi and its tributaries, an unusual feature of recent development has been the large increase in the number of steam vessels, and at the same time a decrease in their size. This change is traceable mainly to the introduction of a barge-and-towboat system, and to the extensive use of small gasoline boats. At the same time there has been an enormous increase in the tonnage of unrigged craft. The number of such craft on the Mississippi and tributaries has increased from 6,328 in 1889 to 8,187 in 1906, and the gross tonnage from 3,171,636 to 4,256,740 tons. Many of the barges which make up this large tonnage carry about one thousand tons. They are very cheaply constructed as a rule, and in many cases are sold in the South for firewood, etc.,

as the cost of returning and repairing themisequivalent to the construction of a new barge.

It is impossible to tell exactly what proportion of the tonnage on the Mississippi and its tributaries is owned in Southern states. The official documented tonnage, however, for this shipping in Southern states is small, and it seems that by far the larger portion is owned in the North. Of the coal carriers, by far the largest companyis the Monongahela River Consolidated Coal and Coke Company, controlled by the Pittsburg Coal Company, which operates eighty towboats and steamers and 4,000 coal boats and barges, many of which go all the way to New Orleans. The total cargo craft of these aggregated 2,785,000 tons in 1906 or 63 per cent. of the total vessel tonnage of the Mississippi system.

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FEDERAL AND STATE AID TO INTERNAL IMPROVEMENTS IN THE SOUTH.

To the Southern states, one of the most serious economic results of the War between the States was the great decrease in taxable values through

the loss of slave property. The total value of the real and personal property in the South at the outbreak of the war has been estimated at about five billion dollars, of which about two-fifths represented the value of its slaves.

Other property had been destroyed or its value impaired by the war. State debts were large. Interest on bonds in some of the states had not been paid for years. The problem became one of meeting such debts rather than of incurring new ones. During the Reconstruction period, however, the legislatures made little provision for the payment even of the accrued interest, although in some states railroads were aided at a stated amount per mile of line constructed, ranging from $8,000 to $15,000 per mile. In general the earnings of the railroads during this period were insufficient to pay the expenses of operation and maintenance, leaving nothing to be paid on the railroads' obligations to the states, so that little dependence could be placed in that source of revenue. A notable exception to this general condition was the Western and Atlantic Railroad owned by the State of Georgia.

As political conditions became settled, the question of devising ways and means to realize on the internal improvement investments of the states became a live issue. Virginia was among the first to guard against further aid to such projects, and in accordance with the Acts of Congress of 1867, it was provided that the credit of the state should not be granted in aid of any person, association, or corporation, and that the state should not become interested in the stock of any company. Similar action was taken in other states. In a number of states, acts granting aid passed during the Reconstruction period were repealed, and bonds and other certificates of indebtedness were declared invalid,

as being issued without constitutional authority. State aid to railroads, as a legislative policy in the South, may safely be said to have ended by 1875. By that date the burden of debt had been largely reduced through repudiation, sale of securities, or otherwise.

During this period little was done by the states in the matter of granting aid to waterway improvements. In 1871 and 1872 the legislature of Virginia pased acts directing the Board of Public Works to sell the interest held by the state in various internal improvement companies. West Virginia authorized certain counties to subscribe for stock in the Little Kanawha Company, incorporated to improve the navigation of that river, and in 1872 transferred the interest of the state in the Kanawha Company to the United States government. Florida conferred a right of way through swamp lands upon certain canal companies. In Alabama and Louisiana, the activity of the legislatures in regard to such improvements was confined chiefly to memorials to Congress requesting Federal appropriations. In Kentucky, some appropriations were made for improving the Kentucky River, and in 1868 the state works on the Green and Barren rivers were ceded to a private company. In the other Southern states little or nothing was done in aid of navigation.

In 1870 the United States government entered upon a liberal policy of direct appropriations for the improvement of rivers and harbors, which has continued to the present time. The growth of Federal power and the result of the war had weakened the constitutional objection against such appropriations, and a Rivers and Harbors Bill of that year carried appropriations approximating $2,000,000. Since that time such bills with increasing amounts

have continued to be passed. In recent years it has been customary to make large appropriations in alternate years; in other years making provisions only for contracts under way. The expenditure of these appropriations and the supervision of the improvements undertaken have been in charge of the engineer corps of the war department. The projects to which Federal aid has been given have been of varying degrees of importance. One of the chief objections that has been urged to the policy pursued by the government has been that it was not a policy at all. The improvement on one river has had little or no relation to that of another river, although the two might form parts of a through route. The same is true even of parts of the same river. Until recent years little thought seems to have been devoted to uniformity in the dimensions of related improvements, and it must be remembered that the economic utility of a river, canal or other waterway is measured by the dimensions of the smallest section.

In 1872, a select committee on Transportation Routes to the Seaboard was authorized by resolution of the United States senate. The report of this committee, submitted in 1874, contained various recommendations regarding the improvement of natural waterways and the construction of artificial ones. The committee reached the conclusion that the power to regulate commerce includes the power to aid and facilitate it, conferring upon Congress, in its discretion, the power to improve or create channels of commerce on land or by water. Among the specific recommendations of the committee were—that the United States improve the Mississippi by opening its mouth to vessels of 28 feet draft; that the government open a route via the Ohio and Kanawha rivers and a freight railway or

canal through West Virginia to tidewater in Virginia; and a route between the Tennessee River by a canal or freight railway, and the Atlantic Ocean. The committee regarded government aid to any route owned or controlled by private corporations to be unwise, alleging that such companies invariably combine with each other against the public. Although the plans recommended were not adopted, one of the chief benefits of the report lay in its educational value. The commercial results of subsequent improvement of the mouth of the Mississippi by the Eads jetties did much to justify a not unimportant part of the committee's report.

Meantime the expansion of railroads and of industrial enterprises attracted vast amounts of private capital. Although the securities of these private corporations were issued in large amounts, the supply of such capital seemed ample. Investments in waterway projects in the South and in other parts of the country were held in little esteem when the future returns from railroads and industrial undertakings appeared so promising. The reluctance or refusal of the state governments in the South to aid internal improvements was compensated in the case of railroads by private capital, and in the case of waterways by the liberality of the national government. Memorials to Congress were made by state legislatures with increasing frequency. In some of the Southern states the legislatures did little else for the rivers, although some private corporations were authorized to cut canals that for the most part were valuable only for local purposes.

Government appropriations for the improvement of Southern waterways have been variously applied. Harbors have been deepened, enlarged or reconstructed by building breakwaters; by removing

obstructions from rivers; by dredging channels; and by regulating navigable depths through the construction of locks and dams. It is notable that in each of the Southern states bordering the Atlantic and Gulf coasts, the Federal appropriations from the earlier days up to and including the Act of March 2, 1907, were largely devoted to the improvement of one or two principal ports or rivers, the remainder being made up of comparatively small amounts. Thus about three-fourths of the appropriations in Maryland have been devoted to the improvement of the harbor of Baltimore and the Patapsco River; in Virginia nearly 65 per cent. has been for Norfolk harbor and the James River; in North Carolina about the same proportion has been expended on the Cape Fear River above and below Wilmington; in South Carolina, more than four-fifths have been spent on Charleston harbor and Winyah Bay; in Georgia, three-fourths have been for Savannah harbor; in Florida more than one-half, for the St. Johns River and Pensacola harbor; in Alabama a large part of the total, for improvements to Mobile Bay, harbor and river, and the Alabama River system; in Mississippi, over one-half for the Pascagoula River and Horn Island Pass, and in Texas, nearly one-half for Galveston harbor. In Louisiana about 85 per cent. of the expenditures have been on the Delta and passes at the mouths of the Mississippi.

In the interior, the government has taken over both canals and river slack-water improvements formerly under control of the states or private companies, and entered more largely into the work of improving the navigation of numerous streams. Among the more important are the Louisville and Portland Canal, and the improvements on the Monongahela, Kanawha, Little Kanawha, Kentucky,

Green and Barren, the Cumberland, and the Tennessee rivers.

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THE DEVELOPMENT OF TELEGRAPHIC AND TELEPHONIC COMMUNICATION IN THE SOUTH.

IN 1860 the telegraph lines in the South were described by Willian S. Morris, president of the Southern Telegraph Companies, as the lines "South" and "Southwest." The principal lines "South" were the Washington and New Orleans Telegraph Company, and the lines extending from Washington via Richmond, Lynchburg, Bristol, Knoxville, and Chattanooga to Atlanta. The lines "Southwest" were O'Reilly's "People's Telegraph Company" from Louisville to Nashville, Memphis, Columbus, Jackson, and New Orleans; Kendall's New Orleans and Ohio Telegraph Company via Wheeling, Lexington, Natchez, and Vicksburg; and the Ohio and Mississippi Telegraph Company, O'Reilly's line from Louisville to St. Louis. At this time the Washington and New Orleans Company, one of the most important systems, operated only two wires. The lines "South" were leased to the American Telegraph Company in 1860. This

was Kendall's consolidation of the coast lines, formed to avoid the expense of separate organizations, to obtain uniform traffic rates, and to secure quick connections for through messages. There were thus two systems in the South uniting most of the principal cities; the American Telegraph Company and the New Orleans and Ohio, generally described as the Southwestern Telegraph Company. The American Company soon absorbed the Southwestern, and itself passed into the control of the Western Union in 1866. At this time the American Company was operating 20,000 miles of wire.

The Western Union Telegraph Company, organized in Rochester, N. Y., in 1851, originally operated the House printing telegraph patents in opposition to the Morse device. Well managed from the beginning, it began its remarkable expansion in 1855 by purchasing all the poorly constructed and depleted Morse lines in Ohio, Indiana, Illinois, Wisconsin, Michigan, Iowa and Minnesota. In 1866 all the lines South and Southwest passed into control of this system. In 1874 the Southern Telegraph Company from Cincinnati to Memphis and New Orleans via Louisville, and the Mississippi Valley National Telegraph Company from St. Louis to New Orleans were both absorbed by the Western Union after short independent existences. The Southern and Atlantic Telegraph Company starting in 1870, extended, by 1874, from Washington to Richmond, Norfolk, Chattanooga, Charleston, Savannah, Fernandina, and Cedar Keys. It developed service by cable to Cuba, connecting with the West Indian System. This company was acquired by the Western Union in 1876, at which time it had 5000 miles of line and 150 offices.

In 1885 there were over fifty telegraph companies between Washington and the Mississippi River, all

comprised in the Southern Division of the Western Union Telegraph Company. This division had 1321 offices, 57,000 miles of line, and in 1884 transmitted 3,000,000 messages. These figures represent about 10 per cent. of the equipment and 8 per cent. of the business of the entire Western Union System at that time.

At present telegraphic communication in the South is offered by the Western Union System, the Postal Telegraph Cable Company, and the Cumberland Telegraph and Telephone Company. The Postal Company was organized in 1883, and its business for the entire country is now about one-quarter that of the Western Union. The statistical reports for the several companies are not so segregated as to show the income, expenses and equipment for the different states. It appears, however, from a comparison of reports from the Western Union and from the Bureau of the Census, that in 1907 approximately 11,000,000 messages were sent in the South, and 2,800 employees earned in wages and salaries nearly $2,000,000.

No figures are available showing the amount of telegraphic business in the transmission of news, but it is known to be enormous. There are eighty-three fire alarm systems and twelve police patrol telegraphic systems in the cities of fourteen Southern states. The greatest inventor and promoter of the telegraphic fire alarm system was John N. Gamewell of South Carolina.

The volume of telegraphic communication in the South, as in the country at large, has been enormously lessened by the telephone. While the telegraph has inherently a field of its own, as is reflected in the steady increase of its traffic, the telephone has appropriated much business formerly handled by the telegraph, and has by its peculiar facilities created

an immense new service. Within twenty years of its invention the telephone far exceeded the telegraph in physical and financial magnitude. The reduction in telegraphic business results from the substitution of the long distance call for the telegram between distant points, and the local call for the telegram within city limits. The telegraph remains superior for long distances if the message is taken as the unit, but on a basis of the number of words and time for exchange of messages the telegraph is at disadvantage. The rates for the two methods differ little for medium distances.

For seventeen years following the issue of the Bell patents in 1876, telephonic development was accomplished solely by the American Bell Telephone Company. The subsidiary Bell companies formed independent systems and were conducted primarily for revenue; such systems are known as "commercial systems." A large number of "mutual systems" were also organized. These were operated primarily for telephone service to the owners, revenue being incidental. Of a later date are the so-called Independent or rural lines, having no regular exchanges but each serving several farm houses.

Of the Southern states, South Carolina and West Virginia had the first permanent commercial systems, both established in 1885 and preceded by only three other such systems in the country. Virginia, Texas, and North Carolina followed in the next year, and Mississippi and Arkansas in 1887. In 1888 two more systems were established in Virginia and one each in Tennessee, Missouri and Arkansas; in this year of the twenty-three systems of this class in the country thirteen were in Southern states. Of the mutual systems, Virginia formed the first in the South and the fourth in the country in 1888.

The Bell patents expired in 1893, and opened the field to independent systems. There followed a greatly accelerated telephonic development. In 1892 there were 28 commercial systems in the Southern states, 58 in 1894, 116 in 1895, and by 1902 there were 844 systems of this class in the South; in addition there were 142 mutual systems and nearly 10,000 miles of wire in the independent rural lines, the South Atlantic states having the second greatest extent of lines of the last-named class in the five geographic divisions of the country.

The early process of evolution was the formation of a mutual system from several rural systems, the combination thus formed eventually developing into a commercial system. As the centres of population have become equipped however the sequence in this process has been somewhat altered. The rural line has become one of the important instruments of existing companies for increasing business, and is now exploited and constructed by such companies. This tendency is a natural consequence of increasing competition, and especially of the greatly improved methods for long distance speaking. Indeed the extremely rapid spread in the use of the telephone itself since 1900 is largely due to the present possibility of talking practically from one end of the country to the other. In 1902 $11,250,000 was expended on new construction in the Southern states, this amount being nearly one-quarter of the total for the whole country, and this total amounting to more than one-seventh of the par value of the total telephone capitalization. In the same year there were 368,000 telephones in the South and over one billion messages or talks, this number representing about one-fifth the total traffic for the country. The population per telephone was sixty and the number of messages per capita was forty.

At present, telephonic communication in the South is furnished by four licensed companies of the American Telegraph and Telephone Company, and by various smaller independent systems. The Bell companies according to the United States census reports of 1907 operated 540,000 telephones or about one-half of the total number in the region; in addition 176,000 independent stations were connected with the Bell system. This system is the most important factor in the present state of the development, for it offers the only comprehensive network of long distance lines reaching to all parts of the country. This is a most important inducement to regions still unconnected. More than one-third of the revenue of the Southwestern Telegraph and Telephone Company for 1908 was from "toll" service or traffic between towns and cities over long distance lines. In reply to the question "What do you consider the most important influence in the development of telephonic communication in your territory?" the four managers of the Bell companies in the South have designated the increased facilities and extension of the toll line system. The aim of one manager is the "saturation" of his territory with a complete network of interconnected exchanges. The Railroad Commission of Virginia is one of the first to require its railroads to equip their stations with telephones as a public commodity.

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COMMERCE.

THE INFLUENCE OF THE FACTORAGE SYSTEM.

IN Volume V of this series we discussed the influence of the factorage system in Southern staple agriculture prior to the war. We shall here glance at the operation of the system during a more recent period.

It is probably safe to say that the Southern factor was almost as much damaged by the war as was the Southern planter. The plantation and the factorage systems were too closely associated for it to have been otherwise. As slaves constituted probably the most important asset of the planter, they necessarily represented a large part of the security pledged by him to the factor. And as the raising of cotton was the business of the one, so was the handling of that commodity the business of the other. The complete destruction of the money value of the slave, and the temporary paralysis of cotton growing, were disasters too far-reaching in their effects to be confined to any one class. But in the matter of recovery from such distress the odds were in favor of the factor. Even though the part of his security represented by slave property was destroyed, the land remained. And as the land constituted the sole means of livelihood of its owner, he was compelled to operate it after some fashion.

The burden of organizing a new system of industry upon the ruins of the old, of creating a new labor

force out of the restless, demoralized, and bewildered freedmen, fell heavily upon the planter. It may be said to the credit of the factors as a class that they seconded the efforts of the planter. It may be even claimed for them that they alone made possible whatever measure of success was achieved. But, while giving them full credit, we may say that there was practically no other course open to them. They had either to render financial assistance to the planter upon whose land they held a mortgage, in the hope and prospect of rebuilding their business and recovering ante-bellum loans, or they must take over land which had no value unless actively operated, and for which there was no market and no demand. With the factor it was a case of either assisting in reorganizing the planting industry of the South, or of building up an entirely new and different line of business for himself. The essence of the whole matter is that the planter and the factor did coöperate through the distressing period following 1865,—and the plantation and the factorage systems were each given a new lease of life.

But the old order had changed. Property in slaves was destroyed and a new basis of operating credit had to be found. The growing of staple crops was just then more exclusively a credit business than ever before, and something had to be found to form the security for current operating funds, additional to the land, which, in most cases, was already encumbered. To meet this demand there was finally evolved and legalized the system of giving a mortgage on the crop to be grown with the funds thus secured. Whatever may be said of this "crop lien system," as it came to be known, it revolutionized the business of growing cotton and widely extended the influence and ramifications of the factorage system. Before the war, a man without capital or personal

credit could not engage in cotton planting on a large scale. He must have something tangible to offer as security for operating funds. And even when his personal character and integrity entitled him to credit, the necessity of purchasing his labor supply made the venture represent such a heavy total investment that comparatively few were able to embark in the business in an extensive way. The larger planting estates were in the main either inherited or gradually developed. But after the emancipation of the negro and the passing of crop lien laws, the business was placed upon a different basis. The factor did not have to fear the diversion of any portion of the crop in the growing of which his funds had been used, for the law gave him ample protection. The personal equation was now reduced to a minimum. The cotton grower no longer had to buy his labor, and invest in this item alone from forty to one hundred thousand dollars before he could rank as a "large planter." As soon as he accumulated sufficient livestock, the amount of land which he could rent or purchase, on credit or otherwise, became almost the only limit to the extent of his operations. Negroes were free, and one man as well as another could employ their services in growing a crop. Advances of funds were usually based upon the number of bales of cotton contracted to be grown and shipped to the factor. The amount was from ten to twenty dollars, or more, per bale, according to prevailing prices of cotton.

The returns to the factor were sufficient to compensate for any risk involved. The rate of interest charged was high,—rarely less than 10 per cent., and often more. And the funds advanced were not placed at the disposal of the planter in bulk and at once. The factor was banker also, to the extent that he remained the custodian of the funds advanced,

which were available only by being checked against in his hands. And it was frequently stipulated that only a fixed portion could be drawn per month. Yet the rate charged was as if the entire amount were handed the planter when he gave his mortgage. An invariable feature was the requirement that all cotton grown by the planter be consigned to the factor, —to which was usually added a minimum shipment clause. Under this the planter undertook to raise and ship not less than a certain number of bales, and to pay a penalty commission of one, two, three or four dollars per bale for each bale under the agreed number. The commission charged by the factor for selling the crop was usually 2½ per cent. on the gross proceeds, but was sometimes as high as 3½ or 4 per cent. As the factor controlled the handling of the crop after it reached him, local competition enabled him also to secure from warehousing and draying concerns a substantial rebate on all cotton turned over to them. In addition to these items of profit, there were his commissions on all purchases of supplies made by him for the planter's account. There were other profits in the business which were recognized as legitimate,—but which custom, rather than a strict standard of commercial ethics, alone made permissible.

The ante-bellum factorage business required such a volume of capital that it was confined to the larger cities of the South, and usually to those on seaboard. The lessening of the volume of capital required, through the abolition of slavery, together with the profits of the business, developed an interior factorage system which has materially altered the economy of the cotton states. Improved transportation facilities made this possible, but it was accomplished through the rise of the country merchant, and the advent of mortgage loan companies in the early eigh-

ties. Prior to the appearance of the latter concerns, the city factor held a mortgage on the planter's land, either to secure ante-bellum obligations or to cover subsequently accumulated balances. This was either in addition to the mortgage for current supplies, and ran for a term of years, or the two were embraced in a single instrument, annually renewed. The planter was thus compelled to do business where his land mortgage was held, regardless of possibly better rates or terms elsewhere. The first step in the process of shifting part of the factorage business to smaller interior towns, and thus breaking the monopoly so long enjoyed by New Orleans and other cities, was the taking up of planters' land loans by foreign loan companies. When this was done, the planter became free to transfer his current business to any point offering the most favorable terms.

The country merchant, in the smaller towns and villages of the interior, had begun to do a cotton advancing business on a small scale immediately after the war. The crop lien system enabled him to increase his operations with safety, and he frequently became as much factor as merchant. The primary function of the factor, historically considered, was that of a distributor of commodities. A necessary adjunct to the discharge of this function was the presence of a purchaser. The purchaser of cotton in quantities naturally established his headquarters, or those of his agent, at those centres in which cotton was accumulated. Thus for many years a combination of conditions tended to strengthen the monopoly, held by a few cities, of the entire business of handling the cotton crop, from financing its production to selling it to the manufacturing consumer. The country merchant at first acted mainly as a medium for gathering together a large lot of cotton

for final consignment to a city factor for sale—though upon more favorable terms than could be secured by a borrowing grower. But better transportation facilities, improved means of communication, and increasing competition, finally brought the buyer to the interior town. The country merchant ceased to ship his accumulations of cotton to the city factor, but sold, instead, directly to the local representative of New England or foreign brokers, and, later on, to the independent buyer. Inland villages of 1,500 to 2,500 inhabitants built compresses and warehouses, and developed all the features and incidents of the business of cotton handling as conducted in seaboard cities. They also usually borrowed the city's scale of charges and commissions for the service rendered. The city factor no longer constituted the sole refuge of the cotton grower in time of need. The country banker, merchant and factor not only handled the grower's business to just as good advantage, but the relations between the two were closer and more personal in the smaller town, and hence frequently more satisfactory.

The next step in the evolution of the cotton-handling business was toward the elimination of the factor. The financial independence of the cotton grower means the decline of the cotton factor. When the grower is no longer compelled to obligate his cotton to the factor, his natural inclination is to sell it himself. From the country town to the country itself, to the plantation gin and platform, was only a step, and the buyer has already taken it. The planter can to-day dispose of his cotton at his gin, without the intervention of the factor, the compress, the railroad, and other middle agencies, with their manifold charges and countless and vexatious delays. Whether he realizes more for his product by selling it himself is another question, and one which

does not concern us here. We are simply stating an economic tendency.

The influence of the modern factorage system has not been essentially different from that of its ante-bellum progenitor. It facilitated the recovery of the cotton South from Civil War embarrassments, and in alluvial regions made possible the more rapid development of new lands. But unquestionably it has tended to fix the single crop incubus upon Southern agriculture, and has fostered a credit system of farming. Formerly it necessarily accumulated an unhealthfully large part of Southern wealth in a few cities, but the rise of the interior system has largely remedied this evil. The ante-bellum system made for the perpetuating of large estates, while the modern development serves as well the small grower as the larger one. With better facilities for transacting all branches of business on the part of the grower, and a larger measure of financial independence, the factorage system will be still further modified,—or it will ultimately cease to play any part whatever in that economic life in which for so many years it was the dominant influence.

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THE DEVELOPMENT OF FOREIGN COMMERCE OF THE SOUTH.

The rapid development of the foreign trade of the South since 1865 constitutes one of the most remarkable chapters in the economic history of the United States. During the War between the States the prosperous export trade of ante-bellum days had

all but disappeared. Unfortunately, we possess no reliable trade statistics for the years from 1861 to 1865 since the reports of the United States Treasury Department do not include the exports which ran the blockade. The receipts of American cotton at foreign ports, however, furnish us data which bears witness to the practical cessation of the South as a factor in American foreign commerce. The receipts of American cotton at British ports fell from 1,841,600 bales in 1861 to only 197,800 in 1864, and the receipts at continental ports from 271,000 to 43,000 bales.

The recovery of Southern trade from this condition of utter ruin probably stands unparalleled in the history of the world. By 1870 the annual growth of cotton was back to the point at which it had been in 1860, and exports aggregated nearly 3,000,000 bales. By 1880, 4,382,000 bales were exported, and by 1906 this amount was doubled to 8,825,000 bales. With the influx of capital to the South, with the increasing tendency toward manufactures and diversified agriculture, and with the establishment of quicker and cheaper transportation to the agricultural West, the resulting export trade to the South has become highly gratifying, especially since 1880. The total value of Southern exports in that year stood at $216,214,604, but in 1901 amounted to $510,631,268, or over one-third of the country's total. In the short space of twenty years, the South saw the volume of its exports increase by over 95 per cent. as compared with less than 65 per cent. for the remainder of the United States. Instead of possessing only seven ports with $205,000,000 of exports, as in 1860, the South can now boast, as is shown by the following table, of fourteen leading ports with total exports in 1908 of over $616,000,000. In fact, during the interval be-

tween 1880 and 1901, Norfolk and Charleston were the only two important cities of the South where exports declined to a marked degree. Such ports as Brunswick, Fernandina, Pearl River, and Pensacola were of trivial importance in 1880, with exports not exceeding $4,000,000 each, whereas in 1908 their combined exports reached nearly $50,000,000. Even New Orleans nearly doubled its exports during this twenty years' interval, and Savannah nearly tripled hers.

FOREIGN TRADE OF LEADING SOUTHERN PORTS IN 1908.

	EXPORTS.	IMPORTS.
Baltimore	$89,988,505	$29,477,100
Charleston	2,510,965	3,375,997
Brunswick	12,397,838	65,961
Fernandina	8,659,118	105,614
Newport News	8,365,885	1,627,045
Norfolk and Portsmouth	12,534,632	1,096,563
Savannah	61,695,330	2,043,847
Wilmington	30,291,681	879,060
Galveston	161,352,201	5,693,609
Mobile	27,983,997	4,538,698
Pearl River	7,775,843	42,024
New Orleans	159,455,773	42,785,646
Pensacola	20,333,978	687,484
Sabine	12,964,644	14,559
	$616,310,390	$92,433,207

From the foregoing table it appears that the drift of the Southern export trade has turned to a remarkable degree toward the ports situated on the Gulf. In fact, during the last two decades the export trade of the Gulf has grown to more than double the proportion of the Southern ports on the Atlantic Coast. As late as 1885 Galveston ranked as a comparatively unimportant port, with exports of only $12,678,433 as compared with over $161,000,000 in 1908. Since the same date Mobile increased its exports from $3,000,000 to nearly $28,000,000, Pensacola from less than $2,000,000 to over $20,000,000, Pearl River from less than $500,-

000 to nearly $8,000,000, and New Orleans from $78,000,000 to over $159,000,000. In the short space of twenty-five years the Gulf cities increased their combined exports from $97,000,000 to over $380,000,000, or nearly 300 per cent. During this period the proportion in which the Gulf ports share in the total export trade of the United States has advanced to nearly 20 per cent.

The causes of this enormous growth in the export trade of the cities on the Gulf are not difficult to find. Just as was the case during the period before 1860, cotton has remained king of Southern exports, and to an increasing extent the culture of this plant centered in the western states of the South, especially Texas. As already noted, the exports of cotton doubled from 4,382,000 bales in 1880 to 8,825,000 bales in 1906, and most of this increase had its origin in the territory tributary to the Gulf. Galveston was the chief gainer, and increased its exports of cotton from 190,000,000 pounds in 1884 to 1,235,000,000 pounds in 1906.

But while cotton was chiefly responsible for the rapid growth of Southern exports since the war, much importance must also be attached to the vast increase of the Southern production of tobacco, cottonseed oil, petroleum, lumber, pig iron, fertilizers and phosphates, and to the desire of the Mississippi valley to bring its cereal and meat products to the seaboard in the quickest and least expensive way. On the one hand, the Gulf is nearer to the Mississippi Valley than the North Atlantic ports, and on the other hand, such South Atlantic ports as Baltimore drew a large share of Western export business through their advantageous Western railway connections.

As a result of these factors, the South became a leading exporter of commodities other than cotton,

and to a much greater degree than was the case prior to 1860, developed a remarkable diversity of exports. Between 1890 and 1901 the shipments of corn, essentially a Western crop, by way of Southern ports increased from 39,363,601 to 73,836,452 bushels, or nearly one-half of the entire amount sent abroad. By 1901 almost 30 per cent. of the country's wheat shipments went by way of the Southern ports, and the exports of lard amounted to 143,438,289 pounds, as compared with 32,052,584 pounds in 1880. During the same twenty years Southern shipments of flour rose from 712,866 to 7,019,242 barrels. As regards all American exports of food stuffs, the South's proportion increased during this period from less than 12 per cent. to nearly 38 per cent.

It remains to be noted that since the war, and especially within recent years, the South has greatly increased the number of its foreign markets. Southern goods are sent to every European country which possesses a seaport, to nearly every country of South America, to Cuba, and the British and Dutch West Indies, and to Japan and the British and Dutch possessions in the East. Prior to 1860 the South was very largely dependent on the British market. To-day, however, the South is gaining a stronger and stronger foothold in the markets of the world, as the destination of her cotton exports will serve to show. In 1875, 64 per cent. of the total exports of cotton was destined for Great Britain, whereas in 1905 only 43.8 per cent. was sent to that market. This does not mean that the exports of cotton to England declined, because in the decade from 1896 to 1906 they increased over 800,000 bales. It means that to the British market, the South added a wide market in other directions. The shipments to Germany increased during the

decade by nearly 1,000,000 bales, those to France by nearly 300,000 bales, and to Italy by over 200,000 bales.

Lastly, it appears from the foregoing table that, to even a greater extent than was the case prior to 1860, the volume of imports brought into the United States through Southern ports is out of all proportion to the exports. In 1860 seven leading Southern ports received only $37,000,000 worth of imports, an amount less than one-fifth of their exports. By 1908 the fourteen leading ports of the South had increased their imports to $92,433,207, but their exports had meanwhile increased to the enormous total of $616,310,390. While Southern imports thus amounted to slightly less than 20 per cent. of the exports in 1860, this proportion was lowered in 1908 to less than 15 per cent. Baltimore and New Orleans receive the lion's share of Southern imports. Their combined imports for 1908 amounted to $72,000,000, or nearly 80 per cent. of the total for the fourteen leading ports, whereas the imports of such important centres as Brunswick, Savannah, Wilmington, Galveston, and Pensacola amount to less than one-thirtieth of the exports.

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THE DEVELOPMENT OF THE INTERSTATE COMMERCE OF THE SOUTH.

In the article on "The History of Interstate Commerce of the South to 1865," it was explained that by 1860 each of the great economic provinces of the South had been brought into communication with all the others through some 10,000 miles of railway; but that this railway system for the time being only resulted in the extension of the plantation system and did not at once bring about the economic self-sufficiency of the South through the diversification of production. The tendencies explained for the ante-bellum period remained essentially unchanged until about 1880 when there began an industrial development which has scarcely a parallel. Not only did the South greatly increase the amount and variety of its agricultural production, but turned to the exploitation of its mines, forests, and water-falls, and developed a large variety of manufacturing industries which draw their raw materials from its own dominions. Especial emphasis should be given to the fact that Southern agriculture and manufacturing have made their greatest strides in the production of commodities which are needed to satisfy the demands of other parts of the United States.

To appreciate the changes which have occurred in the volume and character of the interstate commerce of the South as compared with that of ante-bellum days a few comparative statistics are given. In the twenty-five years following 1880, the value of manufactured products in the states south of the Ohio and Potomac and east of the Mississippi increased from $287,110,628 to $1,135,468,795, or 295 per cent., notwithstanding the fact that the

census of manufacturers of 1905, unlike that of 1880, included only the products of establishments operated on the factory system. During the same period the number of cotton spindles has increased from a little over half a million to over ten million, or over 1700 per cent.; the amount of cotton consumed in local mills from less than 200,000 bales to over 2,000,000 bales or nearly 1000 per cent.; and the amount of cotton-seed crushed from almost nothing to nearly 4,000,000 tons, producing 175,000,000 gallons of oil. Pig-iron production during the same period has increased from less than 350,000 to nearly 3,000,000 tons in 1907; coke production from 370,000 to over 9,250,000 tons; coal production from less than 4,000,000 to nearly 85,000,000 tons, and lumber from less than 3,000,000 to nearly 12,000,000,000 feet.* Expressing the growth of certain of the South's leading industries in percentages as furnished by the *Manufacturers' Record* we have the following:

Industry.	Increase from 1880 to 1907 and 1908.			
Capital in manufactures	$257,000,000	to	$2,100,000,000 or	716%
Capital in cotton mills	21,000,000	to	266 500,000 or	1,169%
Capital in cotton oil mills	3,800,000	to	90,000,000 or	2,268%
Value of lumber products	39,000,000	to	365,000,000 or	836%
Value of farm products	660,000,000	to	2,225,000,000 or	237%
Cotton production	5,723,934 bales	to	10,582,966 or	85%
Grain production	577,000,000 bu.	to	818,000,000 or	412%
Products of manufacturers	457,000,000	to	2,600,000,000 or	487%
Mineral products	13,800,000	to	286,000,000 or	1,976%
Petroleum production	179,000 bbls	to	27,239,000 or	15,118%
Phosphate production	190,000 tons	to	2,253,000 or	1,081%

Figures like the above furnish the most convincing evidence that the transportation facilities of the South and the amount of traffic between the Southern states has assumed proportions vastly greater than in 1860. The extensive river traffic, especially in the Mississippi Valley, and the coastwise commerce between the South and North Atlantic ports

* The above figures are given by W. W. Finley, President of the Southern Railway Company, in an article on "Southern Railroads and Industrial Development," published in the Annals of the American Academy, Volume 35, page 99.

of the earlier period has been largely supplanted by railway transportation, except for a few bulky articles, such as lumber and coal. In 1880 Poor's *Manual* gives a total railway mileage of only 14,817 miles in the states south of the Ohio and Potomac and east of the Mississippi. By 1890, this mileage had increased to 24,535, and in 1907 to 39,068 or an increase of 164 per cent. over 1880. For the entire South the mileage since 1880 has increased from 20,612 to 67,181 or 221 per cent. Whereas the railway system of the sixties was a mere skeleton of trunk lines, the system of to-day is a network extending to regions remote from the coast and navigable rivers. In 1894, for example, there were 652 counties producing 500 bales of cotton or over, and of this number 597, or 91 per cent. were traversed by railroads.

While abundant statistical evidence exists to show the great strides of Southern industry, it is a regrettable fact that no comprehensive statistics have been collected to show the development of the interstate traffic between different sections of the South. Through the coöperation of commercial organizations, transportation companies and trade publications, the Federal government gathers and publishes monthly a great mass of data on the internal commerce of the United States. But aside from showing the total receipts and shipments of a few of the largest Southern cities as regards a number of selected commodities, this data does not state the origin or destination of the shipments, and therefore makes it impossible to determine what proportion of the total traffic in the South is interstate in character.

In the case of a number of leading commodities, however, such as cotton and grain, which are characteristic of Southern traffic movements, we are able

to note the main changes which have occurred in the interstate commerce of the South. In the transportation of cotton the system of railways has encroached upon the movement of that staple by water. Formerly New Orleans was a natural outlet for an immense territory drained by the Mississippi and its tributaries, and it was not uncommon to have from 40 to 50 per cent. of the total cotton crop of the country reach New Orleans by water, while to-day only 10 to 15 per cent. comes in that way. Again, while water was the chief means of transportation, New Orleans secured the cotton from northern Georgia, north-eastern Mississippi, western Tennessee, and Kentucky. With the advent of the railroad much of this traffic has been diverted eastward to Savannah, Charleston, and Norfolk. Furthermore the Louisville and Nashville Railroad, which passes through the heart of Alabama, diverts much of the traffic to Pensacola which was formerly carried to Mobile and New Orleans. New Orleans, however, has been compensated in a westwardly direction, because such railroads as the Southern Pacific, the Texas and Pacific, and the New Orleans and Northwestern Railroad have secured for it the traffic of a large section of Texas territory which was formerly not accessible by river. Data collected by the Federal government in 1900, as regards the destination of the cotton crop in each of the Southern states, shows that by far the larger part enters into interstate commerce. Thus, of the Alabama crop of slightly over 1,000,000 bales, 97,000 bales moved to New Orleans, 82,000 bales to Pensacola, 67,000 bales to Norfolk, 63,000 bales to Brunswick, and the balance to seventeen other states. Of the Georgia crop of 1,241,000 bales, 567,000 bales were sent to Savannah, 309,000 bales to Norfolk, and 144,000

to Charleston. The Arkansas crop of 600,000 bales was sent to St. Louis, Tennessee and New Orleans in the respective amounts of 277,000, 157,000 and 101,000 bales. South Carolina sent almost equal amounts to Charleston, Wilmington, and Augusta. In the case of nearly every cotton-producing state a considerable portion of its crop was consigned to the New England mills.

In the case of grain the development of traffic movements is similar to that noted in cotton. In 1873, owing to the development of the Eastern route for grain, the South shared but little in the grain trade. New Orleans participated only to the extent of less than two and one-half per cent. in the export of corn and to less than one-half of one per cent. in the export of wheat. Southbound grain amounted to only about one-fifth of the eastbound grain, and of this amount almost one-half, or 16,000,000 bushels, was shipped from St. Louis; 15 per cent. or 5,356,000 bushels from Nashville, about the same amount from Cairo, and 2,784,000 bushels from Cincinnati. Over 77 per cent. of all the grain shipped went by water, and less than 23 per cent. by rail.

By the close of the century, however, the railways had supplanted water transportation to such an extent that over 90 per cent. of the flour and nearly 80 per cent. of the grain arriving at New Orleans came by rail. The South is playing a larger and larger part in the country's grain-trade, and St. Louis, which, owing to its position as a railroad center, is one of the leading grain-collecting points in the central West, is more and more becoming dependent upon the Southern route. There is also a distinct tendency to bring the South Atlantic ports in direct connection with the granaries of the middle West. In speaking of the future

of the South Atlantic ports, Mr. Thomas Purse, Secretary of the Savannah Board of Trade has this to say:

"The recent purchase of the controlling interest of the Central of Georgia Railway with large terminals at Savannah, Georgia, by the Illinois Central Railroad, puts the South Atlantic ports in direct touch with the most important cities of the middle West, including St. Louis, Chicago, Omaha, Sioux Falls and many others, and traverses that section which is the principal granary of this country. The Illinois Central is dominated by the same interests which control the Union Pacific and Southern Pacific railroads, which two lines traverse the West, Northwest, and the Pacific slope. The estimated mileage of these various roads and their branches is something over 22,277 miles. Many of our large railroad systems traversing over 20,000 miles of the south and southeastern section of the country are beginning to recognize the future of the South Atlantic ports, as the natural port of entry and export for the South and Southeast, being in the path of the world's commerce, both foreign and domestic." *

The diversified traffic noted in cotton and grain is typical of most of the South's leading commodities, especially its manufactures and its coal, although it is impossible to arrive at an approximation of the amount produced in one state and entering into the commerce of another. The Alabama iron industry, for example, has grown to such dimension that it exercises a direct influence upon the iron markets of the country, as is shown by the fact that Birmingham pig iron is regularly quoted in the Cincinnati market. On the other hand, the scanty timber resources of the North Atlantic

* Annals of the American Academy, Vol. 35, p. 122.

States place this section in direct dependence upon the South Atlantic States for the greater part of its lumber supply. Over twenty-five ports, extending from Baltimore to the ports of Florida participate in a flourishing coastwise lumber trade with the Atlantic ports. The adjustment of the lumbering business to the center of supply has made the ports of Georgia the chief outlets for northern consumption. The Gulf states are better supplied with timber than the South Atlantic States, but their shipments go mainly to foreign markets instead of to the North.

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THE GROWTH OF THE SOUTHERN PORTS.

WHEN the ports of the seceding South were declared open directly after the close of the Civil War, an impetus was given to commerce throughout the world; for the looms of Great Britain and France, no less than those of the Northern States, had suffered very great hardships during the four years of cotton

famine. It is true that even before the raising of the blockade various modifications had been made in the restrictions on commercial intercourse at ports occupied by Federal troops, but the results proved far from satisfactory by reason of the keen competition in contraband goods.

This extraordinary revival of business may be generally indicated by the fact that in 1867 the South furnished in value nearly seven-tenths of the total exports of the United States. The entire exports of domestic products from the United States in 1867 amounted approximately to $471,608,000, the exports of Southern products being estimated at $328,407,000, while the exports of all products from South Atlantic and Gulf ports, including Baltimore, was estimated at $245,533,000.

Although the disastrous epidemic of yellow fever in 1878 affected the trade of New Orleans and other Gulf ports, as well as that of river ports like Memphis, it was not sufficient to turn from the Gulf the tide of commerce that had already set in as a result of the development of new areas for the production of corn, grain, pork, coal, lumber, and cotton; and the expansion of railroads which naturally sought the nearest approach to the seaboard. These industrial changes have brought about a shifting in the relative rank of the Southern seaports as well as a high degree of specialization in their business, with respect both to foreign and domestic shipping.

By 1883 the share of New Orleans in the total commerce of the country was $104,647,800, of which $94,840,434 represented exports and only $9,807,366 imports, while Baltimore's share was $69,560,544, of which $54,960,050 were exports and $14,600,494 imports. In the same year the exports of Galveston were valued at $29,627,898, and the imports at $1,527,804. Savannah exported $22,813,347 and im-

ported $483,281 in value. Charleston's exports amounted in value to $22,573,227 and her imported goods to $498,891. The exports of Norfolk were valued at $18,445,548, and its imports at $186,355.

This increased amount of commerce passing through the ports of the South was due partly to the larger output of its own fields, forests, and general industries, and partly for a reason already indicated, namely, the volume of Western products shipped through the Southern ports to European markets.

In 1880 there were shipped from the ports of the South 1,422,355,297 pounds of cotton, and in 1901 cotton shipments rose to 2,726,597,018 pounds, or an increase of 1,304,241,701 pounds.*

Even more striking has been the volume of foodstuffs, representing Western rather than Southern products exported from these ports. From New Orleans, Baltimore, Newport News, Norfolk, and Mobile there was shipped in 1901 nearly one-half of the quantity of corn exported from this country.† It has also been estimated that nearly 30 per cent. of the wheat exported from the United States in the same year passed through these ports.

As contrasted with 712,866 barrels of flour exported in 1880 from Southern ports, there were shipped, in 1901, 7,019,242 barrels. There have likewise been striking gains during the same period in the volume of packing-house products sent out through the cities on the Southern seaboard, as well as in the quantity of cotton cloth so exported. This latter increase is in great measure the result of the development of milling industries in the South, and it is worthy of note that whereas in 1880 the South-

* Bruce, Philip A., *Rise of the New South*, 253.
† *Idem.*

ern ports shipped 790,703 yards of cotton fabrics, in 1901 this trade had grown to 4,760,167 yards.*

The three most important Southern ports are New Orleans, Galveston, and Baltimore, each of which draws largely upon the West for its commerce and is also the tidewater terminus of one or more trunk lines of railroad vitally interested in the ports they severally serve. In 1908 the exports of New Orleans were valued at $159,455,773, and its imports at $42,785,646. Galveston's foreign trade in the same year amounted to $167,045,810, of which $161,352,201 represented exports and $5,693,609 imports.†

The exports of Baltimore in 1908 were valued at $89,988,505 and its imports at $29,477,101. Other Southern ports on the seaboard had a commerce in 1908 estimated as follows: Norfolk and Portsmouth, exports $12,534,632, imports $1,096,563; Newport News, exports $8,365,885, imports $1,627,045; Wilmington, exports $30,291,681, imports $879,060; Charleston, exports $2,510,965, imports $3,375,997; Savannah, exports $61,695,330, imports $2,043,847; Brunswick, exports $12,397,838, imports $65,961; St. Johns (Jacksonville), exports $815,152, imports $309,229; Fernandina, exports $8,659,118, imports $105,614; Pensacola, exports $20,333,978, imports $687,484; and Mobile, exports $27,983,997, imports $4,538,698. The development of Newport News and Brunswick, relatively new ports, has been notable. Equally as striking has been the recovery of such ports as Charleston, Galveston, Baltimore, and Jacksonville from untoward calamities.

Since the close of the war the government has deepened and otherwise improved the channels of approach to the various Southern seaports and these works have had a tendency to attract larger vessels,

* Bruce, Philip A., *Rise of the New South*, 254.
† U. S. Bureau of Statistics, *Foreign Commerce and Navigation*, 1908, 34–36.

so that at a number of these ports, notably Baltimore, Norfolk, Newport News, Pensacola, Mobile, New Orleans, and Galveston, there are a number of regular lines of foreign and domestic steamships. At the grain ports, moreover, huge elevators have been constructed in recent years and more attention generally is now being devoted to the subject of the ownership and administration of the waterfront. This is especially true of Baltimore and New Orleans, the latter city possessing a system of terminal facilities which is claimed to be unsurpassed by that of any other American port.

For reasons discussed elsewhere there has been a marked decline in the past quarter of a century in the volume of commerce moved annually on the Mississippi River and its tributaries, which has caused such inland ports as Louisville, New Orleans, St. Louis, Memphis, Nashville, Kansas City, Natchez, Shreveport, and Vicksburg to lose much of their water-borne traffic; but at the same time not a few of such ports have risen to even greater prominence as railroad or industrial centres.

Louisville, on the Ohio River, is still important because of its proximity to the coal fields and to such improvements as the Louisville and Portland Canal. From the point of view of the amount of freight handled, it stands first among the river ports of the South; the total river movement at Louisville in 1906 amounting to 1,203,727 net tons, of which 1,116,955 tons represented coal receipts. In net tons the river trade of New Orleans in the same year amounted to 1,036,613; that of St. Louis to 743,981; that of Memphis to 662,308; that of Nashville to 99,193; that of Kansas City to 645,954 (largely sand); that of Natchez to 56,966; that of Shreveport to 4,026; and that of Vicksburg to 375,454. St. Louis has practically lost its river grain trade, and other

river ports have been unable to retain their receipts and shipments of cotton by river. Few of the river ports, moreover, have devoted proper attention to the control of their river front or to the regulation of wharfage or other charges connected with traffic by water.

As a rule receipts of traffic are larger than shipments because of the coal trade; but at such points as Charleston and Parkersburg, W. Va., in the centre of the coal fields, the reverse is the case.*

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UNITED STATES TREATIES AND FOREIGN COMMERCIAL POLICIES AFFECTING SOUTHERN ECONOMIC DEVELOPMENT.

IN the remarkable growth of American manufactures and foreign trade since 1865 the South has received a large share of benefit, partly by its supremacy as a producer of cotton to meet the increasing foreign demand, and partly through the development of a variety of new industries which have transformed its economic and social life.

The European demand for cotton which made prices high ($1 per pound), after 1865 stimulated

* Bureau of the Census. *Report* on Transportation by Water, 1906; 184–185.

production and rapid extension of the cotton area until about 1876 when the price fell to 10 cents and induced many Southerners to reclaim waste lands and begin to rotate crops, giving more attention to the cultivation of wheat and to the raising of early fruits and vegetables. Others were led to invest in forests, mines, and manufactures—especially in cotton manufactures—and to engage in various new industries. The result was a remarkable industrial development which, together with the geographic situation, indicates that the South may soon become the natural source of manufactured goods for the West Indies and northern South America.

The South as a part of the United States has obtained a more commanding position in the world's markets by several recent events: the acquisition of the Philippines as a trading base, the completion of the trans-Siberian railway, the industrial awakening in Japan and China, and the construction of the Panama canal by the United States.

The South has continued to control the supply of raw cotton for Europe. Chinese cotton has not been exported to Europe since 1867. The decline in exports of East Indian cotton to Europe since 1871-72, partly due to the recent increased domestic consumption and to the recent exports to Japan, is remarkable, and every demand thus displaced has been supplied by American cotton. The increased product resulting from the extension of cotton cultivation in India probably will be absorbed by the growing requirements of Indian cotton mills. In Egypt, where the great culture of cotton began with the cotton famine resulting from the American war of 1861-65, the production of cotton, which declined elsewhere after the renewal of the cotton trade of the South, steadily increased. The supply of a grade of cotton which commands a higher price than the American

upland cotton has been somewhat increased by the opening of newly constructed irrigation works at Assouan and Assiout on the Nile by which a large territory has recently been added to the cultivated soil of Egypt. Efforts of the Russian government, since 1889, to foster the development of cotton-growing resulted in a considerable increase of the acreage devoted to cotton culture in the outlying possessions of southern Caucasus, and even more so in Turkestan where the trans-Caspian railway gave the first impetus to the utilization of the natural resources. The government has made considerable efforts to improve the inadequate water supply of the region by regulating the water course of the Syr-Daria and other waterways. Notwithstanding these systematic government efforts and those of the local agents of the large Russian and Polish cotton spinners, the output has been disappointingly slow; and recent development does not indicate that the region can be made to produce the cotton necessary to make Russia independent of a foreign supply and of the vicissitudes of the American market.

An interesting development of Southern trade in raw cotton has taken place in the Far East since 1870. The most astonishing feature of foreign trade development is shown in the marked increase of exports to the Orient after 1889. The total export of raw cotton to Japan and China rose from 23,500 pounds in 1889 to 32,000,000 pounds in 1897, and 119,000,000 pounds in 1898. The larger part of this raw cotton went to Japan, where the manufacturing of cotton has developed very rapidly under the encouragement of imperial policies. The export of cotton manufactures to the East also showed considerable increase. Many of these were exported from the South, which began to manufacture articles to suit the Orient.

The value of Southern manufactured products increased from $338,791,898 in 1880 to $1,184,398,648 in 1900, and the capital invested in manufactures increased from $192,949,654 to $953,850,192. In 1900 the South was the seat of nearly half the cotton manufactories of the United States, consuming 40 per cent. of the raw cotton. The rapid increase in the foreign demand for cotton after the war, and the profitableness of its cultivation, led to a great increase in the number of Southern mills. In 1880 the consumption of Southern mills was about 12 per cent. of the total consumption in the whole country; but in 1900-01 it was more than 45 per cent. With this progress in the number of bales consumed has come a tendency of the Southern mills to turn their attention to finer goods.

In some instances the South has shown its ability to manufacture cottons that can win against English competition—although there is in nearly all countries a prejudice in favor of English products whose makers have done more to cater to the peculiar customs and tastes of the various peoples, and although with some countries (as Africa) English policy has established direct steamer communications which gives great advantage against the United States, who has no direct American steamer communications.

The South is gradually securing a large and steady demand in a widely separated market, which will prevent a repetition of the disastrous times which overtook the cotton industry during the Boxer outbreak in China. Southern manufacturers are now finding their way into the markets of every country, from England and the shores of Africa to the native shops of the Orient.

In many other articles, also, the South has an increasing export trade to supply foreign demands. This may be illustrated by reference to Texas, where

immense deposits of oil were discovered in 1901. Galveston has recently become a great wheat-shipping centre. Shoes made from Texan hides have captured the favor of Europe. The export of cattle and cured meats, which was greatly aided after 1870 by changes in methods of transportation and improvement of transportation facilities, and which has been often restricted by the inspection of foreign governments, has increased greatly in recent years as a result of measures taken by the United States government to protect and foster the trade—including regulations to secure proper official inspection.

The complaints made in foreign countries for several years in regard to the damaged condition of grain shipped from Galveston (and New Orleans and Newport News), where the inspection controlled by the commercial organizations was not as efficient as that at Baltimore, New York, and Chicago, in 1900 led to a consideration of the need of a uniform system of inspection in the interest of the export trade, and suggestions in favor of adopting as the first step the optional system of the government of Argentina.

In its industrial and commercial development, the South since 1865 has been affected by various international treaties or agreements: international conventions for arbitrating international difficulties; treaties guarding international commerce against injuries from the sudden closing of the markets; the Pan-American Congress which met in Washington 1889-90 to promote more intimate commercial and diplomatic intercourse between the United States and other countries of the Americas; numerous reciprocity commercial treaties; arrangements for the extension of markets for the enormous increase of American production; every treaty for the acquisition of territory which extended American control in the Pacific, the Far East and the Caribbean, and

led to the development of an American colonial system; the Hay-Pauncefote treaty which abrogated the Clayton-Bulwer treaty and removed all obstacles to the construction and control of the Panama canal by the United States government.

The South has also been affected by various policies—both domestic and foreign—of countries in both hemispheres and especially by the revival of the protectionist policy which, soon after the Franco-Prussian war, spread to Austria, Germany, Italy, France, and other countries—recently, even to England.

In the American invasion of European markets Southern economic interests are greatly benefited. Southern exports to Great Britain and Germany have greatly increased, and those to France, which is the best customer for cottonseed oil, have slightly increased in the face of the high French tariff. The trade of the South with other European countries, especially with Russia and Austro-Hungary, has been greatly restricted by high tariffs which tend to keep out American goods. Its interests, and the interests of other parts of the United States, have been seriously affected by a system of special commercial treaties in Europe resulting from the increase in the manufacturing interests of several continental states of Europe which made them rivals of England, the growth of their commerce, and the increased importance of commercial questions. In Germany an attempt to protect German products by a higher freight tariff on the German railroads for foreign goods caused the United States in 1881 to insert in a treaty with Servia a stipulation that no higher charge should be made for the transportation of foreign goods over Servian railways than that for native goods.

Although the customs arrangements of Europe of

the last half-century have not entirely lost the impress of Cobden's Anglo-French treaty of 1860 easing the customs tariff restrictions which had impeded international commercial intercourse between the European countries, there began after 1871 a powerful protectionist reaction which was strengthened in 1878 when Prince Bismarck gave it the support of his powerful authority.

Although irritated by later developments, the South was benefited at first by the effort to substitute steadily the mechanical for the hand loom after 1870 on the continent, which reduced greatly the price of woven goods—whose cheapness, together with other economic developments, stimulated demand for them and caused a great increase in the consumption of raw cotton.

The modern German empire has had a remarkable recent economic development which has greatly affected the affairs of other countries throughout the world. Abroad its economic interests have been extended by the colonization movement in Africa and the Pacific, by the development of industries in Spanish America, Brazil and Asia by German merchants and settlers; by numerous German lines of steamers; and by railroad concessions to German contractors. At home, its economic development has been furthered by the completion (in 1895) of the Kaiser Wilhelm canal; by the construction of railroads most of which are owned by the government and managed to the advantage of German industries; by a system of bounties which since 1871 have resulted in a remarkable growth in the production and export of many articles; and by a system of tariffs and commercial regulations for the protection of its home products.

The new German empire soon became a competitor for commercial supremacy. Germany lowered her

duties for several years after the Franco-Prussian War—until 1877. Industrial depression, however, induced an agrarian or farmers' protective movement which found expression in a series of tariff enactments beginning under Bismarck in 1879, becoming more stringent in 1881 and 1885, and culminating in 1890 with his resignation. Caprivi in 1891 adopted a more liberal commercial policy which, under the impulse of German initiative and guidance, resulted in the series of commercial treaties of 1891; but in 1901 Germany increased the duties on many agricultural products and manufactures including several products of the Southern states, and since 1903 she has inaugurated a new tariff law which stands for higher protection all along the line. The tariff laws have been skillfully devised to promote importation of raw materials and the home manufacture of goods needed for German consumption. Strenuous efforts have recently been made to utilize German-African colonies as an aid in freeing German cotton industries from the uncertainties of the American cotton market.

In 1881, and for several years thereafter, Texas and other parts of the South were affected by the restrictions and prohibitions on the importation of American swine or pork products levied by the German government and also adopted by Austro-Hungary, France, and Sweden. The German government, which in 1879 had issued a decree regulating the importation of American cattle, in 1894, on account of some alleged cases of Texas fever in American cattle which had been shipped to Hamburg, prohibited the importation of live cattle from the United States—a policy which was soon followed by France, Belgium, and the Netherlands. This led to inspection by the American department of agriculture, but in some cases the state department found difficulty in

inducing the foreign governments to remove the restrictions—which in some instances appeared to be a pretext to keep out American exports in order to prevent competition.

At the same time, in spite of discriminations, the import of the products of the South was increasing. To Germany was sent 47 per cent. of the total export of cotton seed oil cake which had such a rapidly increasing sale.

Since 1865, the commerce of the South has been affected by French policy, both in France and in the French colonies. After the Franco-Prussian War, France, in need of revenue to pay the large German war indemnity, the cost of reconstruction, and the increased expenditures of the government, changed her free-trade policy. The result was a constant augmentation of protective duties, discriminating tonnage duties, bounties on shipping and the monopolization of trade between France and her colonies. Since 1885, the difficulty of marketing American agricultural products in France, due partly to prejudice against American meat products, has been increased by rather stringent tariff legislation enacted in the interests of French agriculture.

France practically controls the markets of many of her colonies. In Algeria, which admits French cottons free of duty, there is a high tariff on the manufactured fabrics of foreign countries. In Madagascar, which admits French imitations of American cottons without duty, the trade in American cottons has been completely killed by the high customs tariff and "by the dissemination among the natives in some insidious manner of a prohibition, culminating in a positive fear on their part to purchase anything but French goods." In French Oceana (Society Islands), where American interests are beginning to dominate, imports from France still have the advan-

tage in view of the minimum duty charged and because consignments of cotton and other articles are forwarded from France in large barks, heavily subsidized, bringing government supplies.

Southern interests have been affected by the tariff policies of the countries of southern Europe. Austria adopted a policy of higher protection in 1878. In Spain and Portugal, high protection has become more and more excessive. The prejudice against cotton seed oil—so rampant in the early eighties as to induce Spain to begin a war against its importation, in which Italy, moved to the defense of her olives, speedily joined—has largely disappeared. In Italy, as in Germany, agricultural depression was largely responsible for the tariff act of 1887 in which agrarian protection is the distinctive feature. The Portuguese tariff of 1892, prohibitive on cotton fabrics, resulted in the development of the Portuguese manufacturing industry which soon supplied all cotton manufactures used in Portugal and her colonies. Spain adopted a tariff to protect her manufacture of cotton goods in which she used Southern cotton.

In 1891 the American consul-general at Vienna strongly urged that reciprocity treaties or new commercial conventions should be negotiated with Austro-Hungary and other European countries as a means of securing a more favorable balance of trade and in order to debar the administrative authorities from the imposition of arbitrary discriminations. Agreements were made in 1892 with Austro-Hungary and Germany, in 1898 with France, and in 1900 with Germany, Portugal, and Italy.

The changes in the Payne-Aldrich tariff act of 1909, though they temporarily caused friction which required adjustment to prevent trade conflicts, did not seriously affect the interests of the South.

Russia, restlessly aggressive in her economic de-

velopment, territorial expansion, and political policies, although she has not to any great extent sought foreign markets for her products, has aimed to become industrially independent and has exported some manufactures to foreign countries. She is one of Europe's largest growers of tobacco and also produces a number of other products common to the southern part of the United States. She still clings tenaciously to a highly protective tariff, which since her railroad system was well advanced (after 1876), has increased. Before the Russo-Japanese War, the Russian policy of exclusion shut out American goods from Oriental territory under Russian influence. The Russian government railway and the Russian Chinese bank with the Russian government back of it worked hard for the trade of Manchuria for which Japanese steamer lines were also competing.

As a result of the complaints of foreign importers that the American cotton is too poorly packed for the rough handling in transshipment on the route to Russia, and of the consequent attempts of the Russian importers to replace American cotton by that which the people of southern Russia have been encouraged to grow from American seed, the American consuls and the department of agriculture have endeavored to secure a better form of packing that will remedy the obstacle to the export trade. Such conditions have also resulted in American measures to apply intelligent government assistance in finding a profitable foreign market for agricultural products. Other foreign countries such as the Australian colonies—which have appointed a board of experts to consult with the leading producers and shippers, to secure transportation and terminal facilities—send agents abroad to study the methods of other countries which may help them in determining their own trade. The measures taken by foreign governments

in the closing decades of the last century to push by government assistance the exports of their agricultural products led American statesmen to see the necessity of more active measures in developing our own export trade—both in extending and holding the markets.

With the American neighbors of the United States, as the result of treaties, changes in economic policies, and improved means of communication, the South has been gradually increasing its commerce. Though the Canadian discriminating tariff in favor of British cottons is rather an influence against American trade there, trade with Mexico has steadily improved. The small duties in the "Free Zone" of twelve miles in width which in 1858 was established along the northern boundary of Mexico, and in 1885 extended across the entire frontier to prevent the immigration of Mexicans to Texan towns whose taxes were less than those on the Mexican territory, gave American manufacturers and merchants a great advantage along the border and even in the interior.

The South was economically benefited also by the extension of the Mexican railway system to connect with the railways of the United States. This extension induced the senate in 1882 to authorize negotiations for a commercial treaty with Mexico (the Grant-Romero treaty) which, although after long debate was approved by the senate, was never carried into effect because Congress was not willing to pass the necessary laws. It provided for free trade in many articles and would have materially advanced the prosperity of the South. While Congress delayed, both Germany and Great Britain profited through the delay by opening negotiations for treaties that were more beneficial to them than to the United States.

The Southern trade with the Spanish Antilles in 1865 was still obstructed by the old Spanish colonial system, which considered the trade with the colonies as a simple extension of the coasting trade, and placed on the imports into Cuba and Porto Rico a system of discriminating duties designed to favor both trade with the mother country and Spanish vessels trading between either home or foreign ports and the colonies. There were four distinct tariff rates. The duties which were applied to foreign goods brought to Cuba or Porto Rico under a foreign flag were four or five times greater than the duties applied to goods brought from Spain under the Spanish flag. This discrimination on trade bore especially heavy on the trade with the United States.

In 1864 the United States imposed a 10 per cent. *ad valorem* discriminating duty on all articles of merchandise imported in the vessels of any foreign country with which the United States had no treaty to the contrary. This was applicable to articles brought from Spain or the Spanish colonies in the ships of Spain.

Although in 1871, by a series of partial agreements, this discriminating duty was abolished on merchandise from Spain and from all the Spanish possessions except Cuba and Porto Rico, Spain considered the law unfriendly and retaliated by a law directed solely against the United States, imposing even on merchandise carried in Spanish vessels the same duties chargeable when they were carried under a foreign flag. In addition to this the Spanish government had imposed what was practically an export duty on goods sent from the United States to Cuba and Porto Rico, by refusing to verify ships' manifests until a certain tax based upon the tonnage of the cargo (and not upon the clerical ser-

vice rendered) was paid to the Spanish consul before the vessel could clear for Cuba or Porto Rico.

In addition to this, the Spanish government imposed a heavy impost duty, practically prohibitory, on fish brought to the island of Cuba in foreign vessels—an imposition which nearly destroyed a lucrative industry pursued by the fishermen of Florida. At the same time owing to the nearness of Florida to Cuba, Spanish vessels clearing from Havana ostensibly for a coast port, would proceed to the coast of Florida or the Gulf of Mexico to fish, and on their return would introduce the product as though caught on the Cuban coast.

Hon. John W. Foster, who had had several years experience as minister to Mexico, understood the Spanish language and people, and was well acquainted with trade conditions of the West Indies, in January, 1884, succeeded in securing an agreement in the nature of a *modus vivendi* abolishing these duties and fees—and, later in the year, successfully negotiated a commercial treaty which in general put American vessels and American trade on the same footing with Spanish trade, and contained favorable stipulations in regard to American commerce which were not granted to other foreign countries. By the latter, all discriminating duties and restrictions and technical peculiarities were abolished, and many articles of American production were admitted into Cuba and Porto Rico free of duty.

Although the treaty contained concessions which were very beneficial to the American export trade, and though it would have been of material benefit to the prosperity of the South if it had gone into operation, it met with considerable opposition, especially on the part of protectionists who feared that the sugar and tobacco interests might be affected. At

the same time, the incoming of a new administration under an opposing party which was unwilling to be hampered by the acts of its predecessor, resulted in a withdrawal of the Spanish treaty from the senate for further consideration before action was taken.

Thereupon the British government broke off negotiations for a similar treaty which had been in process of negotiation with the British West India islands. A similar treaty which had been concluded with San Domingo was also withdrawn from the senate.

Before 1890 the growth of trade between the South and South America was very slow, due partly to the greater European demand for South American products, the greater South American demand for European goods created by the large number of European immigrants to South America, the absence of direct communications between the South and South America, and the lack of reciprocity treaties. England, however, with a recent general increasing excess of imports over exports, seems to be losing ground in her trade with most South American countries except Argentina; and Argentina has recently suffered by the policy of the British government which closed English ports to Argentina cattle and sheep, on account of the prevalence of the foot and mouth disease among them.

Since 1890, the prospects of closer trade relations with South America, Central America, and the West Indies have greatly improved. The basis of policy in the reciprocity treaties authorized by the tariff of 1890 was designed to apply especially to Central and South American countries. Such treaties were negotiated with most of the sugar-producing countries, including Guatemala, Honduras, Nicaragua, San Salvador, British West Indies, British Guiana,

Santo Domingo, Cuba, Porto Rico, and Brazil. These treaties were terminated by the tariff act of 1894. If they had been permitted to remain in operation long enough, they probably would have increased the commerce of the Southern states with the countries south of the United States.

Although the reciprocity principle was reaffirmed by the Dingley act of 1897, it has not been extended since in practice. The tariff act of 1897 empowered the President to make commercial arrangements with other nations offering (in return for equivalent concessions) reductions on import duties and a transfer to the free list of certain goods. Several treaties negotiated by virtue of this law, notably with France, Ecuador, Nicaragua, and also with Great Britain and Denmark for their West Indian colonies, were sent to the senate by the end of 1899 —but opposition to them, especially to the French treaty, was strong enough to prevent ratification.

A year later, the results of the war with Spain, which indicated more clearly American destiny in the West Indies, gave a great stimulus to Southern commercial development—marked at once by an increase in the shipments of cattle and other Southern products to Cuba. Increased relations with Cuba also tended to reduce the preponderating influence of the British cotton trade in the West Indies. In 1903 a reciprocity treaty was made with Cuba.

Within recent years there has been considerable development southward from Baltimore along the Atlantic coast concomitant with the growing commercial activity in the Southern states, and the railroads of the interior have already turned to seek an outlet along the Gulf coast where the great seaport development which the future holds for the eastern half of our country is to occur. The possibilities of

our Gulf development are just beginning to be recognized and utilized. With the forward step in the West Indies since the war of 1898, and with the outlook of completing the Isthmian Canal, the commercial centre of gravity is shifting toward the South where the Gulf coast will have a special advantage in its proximity to Mexico, Central America, and South America. The United States has become a Caribbean power and the Gulf seaboard which has only recently begun to be an important factor in our foreign commerce is coming into its own. With the building up of a native merchant marine, the United States will win a reasonable share of commerce with South America along the Atlantic and Caribbean coasts, which has heretofore been carried by steamship lines controlled by European capital; and with the construction of the canal, the United States will have an advantage over England and Germany in securing the trade of the Pacific coast of South America. By establishing railroad communication, the United States can control the trade between Valparaiso and Buenos Ayres and successfully compete with European goods in Argentina, Paraguay, Uruguay, and Southern Brazil. New Orleans, which has become the focus of the converging trade lines on the Gulf, already promises to become one of the great exporting points of the world. The same may be said of other Gulf ports.

The report on exports for the fiscal year 1909, issued by the Bureau of Statistics at Washington, indicates that the trade of the Gulf ports is increasing more rapidly than the amount of business handled by the Atlantic ports. Taking the figures for twenty years back, the report shows that the increase in exports from the Atlantic ports has been 78 per cent., while the increase at the Gulf ports has been 280 per cent. The greatest rate of gain was made by the

Mexican border ports, at which the increase in outbound commerce was at the rate of 575 per cent.

A greater per cent. of gain in imports is also shown by the Gulf and Mexican border ports as compared with the Atlantic ports, at which the increase was at the rate of 77 per cent. The imports at the Gulf ports show for the past ten years an increase at the rate of 240 per cent., and at the Mexican border 255 per cent. The principal article in which the drift seems to be away from the Atlantic ports and toward the Southern border ports is cotton, which has greatly increased in the movement through Galveston and New Orleans and other Southern ports.

American interests in the Pacific and the Far East, full of economic importance to the South, have been furthered by the earlier relations with the Hawaiian Islands which finally resulted in their acquisition. The fear that the trade of these islands, which demanded an outlet, would be monopolized by Australia and the English, and would result in making the islands practically a British possession, induced the United States, in 1874, to negotiate a commercial treaty with the Hawaiian government by which various articles of Hawaiian production, especially sugar, were admitted free of duty into the United States, in return for the remission of duties on many objects of American manufacture and production. By provision of the treaty the government of Hawaii agreed to impose no export duty on the articles admitted free of duty into the United States. The necessity of this stipulation was seen as a result of an experience with the government of Brazil several years before, which placed an export duty on coffee sent from that country after the United States had removed the custom duties from tea and coffee, thus putting into her own treasury the amount of revenue which the United States had given up.

Afterwards, in order to satisfy Great Britain which claimed the privileges of the most favored nation, the Hawaiian government granted a remission of 15 per cent. of the duties fixed by the general tariff law. In the treaty with the German Empire in 1879, it declared that Germany could not claim the special advantage granted to the United States in consideration of equivalent advantages. A similar declaration was inserted in a treaty with Portugal.

Commercially speaking, the Hawaiian islands soon became almost an American possession. By 1883 two-thirds of the sugar plantations belonged to citizens of the United States. By 1884 95 per cent. of the total commerce was carried on American vessels, resulting also in the purchase of stores in the United States. By 1893 the islands were ready for annexation to the United States, which was finally consummated in 1898.

At the beginning of the American post-bellum period, American interests in the Far East were advanced by important treaties with Japan in 1866 and with China in 1868, and later by the treaty of 1882 with Korea which broke down the last great barrier to international intercourse.

American relations with the Orient since 1865 have also been affected by various events of international importance. Among these is the construction of the Suez canal which was completed in 1869 largely as a result of French policy, and which has exerted such a great influence on the commerce of the entire world. It has especially benefited England who had the advantage in the construction of steam vessels. It made necessary the use of steamships and hastened the transformation of the merchant marines of sailing vessels which had been better adapted to the longer route to the Orient around the Cape of Good Hope. Giving advantage

to the steamer in the China trade, by permitting it to coal *en route,* it inflicted the last blow on the struggling merchant marine of the United States.

Though the opening of the Suez canal gave England a great advantage in the far eastern trade, which was greatly strengthened by the Canadian Pacific railway and its connecting line of steamers between Vancouver and Yokohama, the United States, especially since her acquisition of the Philippines and her negotiations for an open-door policy in the Orient, has recently been gaining a good share of this lucrative trade and has a favorable outlook for the future—especially in the advantage gained in 1898 in the Japanese trade. The Japanese preference for American cotton is clearly shown by the increased importation from 1898 to 1899. The isthmian canal under American control, made possible by the treaties with England and Panama, will greatly facilitate this branch of Southern trade by bringing the cotton fields of the Gulf states nearer to Japan, who by her recent policies threatens to become a strong competitor of both Europe and America in the cotton trade of all the Orient. It will also increase the export of tobacco and oil cake.

With the relative decline of English trade with China, the United States has increased its trade, especially with the southern part of the country. A large part of this increase is in cotton goods. Although the severe enforcement of the Chinese exclusion act, which was reënacted in 1902, caused protests from the Chinese government, and an organized effort of great Chinese commercial companies to exclude American goods from Chinese markets—resulting in a large shrinkage of exports of cotton goods to China from 1902 to 1904—the more recent increase in trade has been large and China appre-

ciates more and more the advent of the United States in the Philippines as her near neighbor.

The South practically controls trade in cheap American goods in the Chinese markets; and, with the development of our commerce with that country, the South with its increasing number of mills may be expected to enjoy an even greater share of trade than now.

Recent developments in American national policy are full of promise for the future commerce and industry of the South. Under the Taft administration, there is a concerted movement among the heads of departments to secure more efficient and economic work in international trade investigations. In the state department, in order to further trade expansion abroad, there has been created a new bureau of far eastern affairs to foster trade with the Orient, and a Latin-American bureau for the development and protection of American interests in Central and South America. Both have been placed under trained experts. The information collected by these bureaus will be used by the administration in determining when to apply the maximum tariff provisions and the other sections of the Payne-Aldrich tariff law that promises drastic treatment for foreign nations which, by special discriminations, excessive tariff rates, or discriminating customs duties or regulations, do not treat fairly the trade of the United States.

In the coming struggle for commercial supremacy in the markets of the world—a struggle which probably will be greatly complicated by the rapid economic development of Germany, the maritime and capitalistic supremacy of Great Britain, the future possibilities of Russia, and the economic policies of China and Japan—the South will have many advantages.

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VALUE AND EXCHANGE.

THE EFFECT OF THE RECONSTRUCTION ON PROPERTY VALUES IN THE SOUTH.

IN earlier chapters* the destructive effects of the War between the States have been dealt with. The Reconstruction period began with a heritage of economic chaos from the war and the resulting emancipation. There are no statistical studies which furnish a comparison between the economic conditions of 1865 and those of 1880, these dates including the economic period of the Reconstruction. But, from a study of the census reports of 1860, 1870, and 1880, certain generalizations may be made. Some of the more important are here given: (1) during the Reconstruction the value of real and other property declined in the Black Belt—the lands, buildings, cattle, and implements not being under proper care and the labor being inefficient; (2) the emancipation of slaves had destroyed a form of property valued at about two billions of dollars; (3) the coast districts producing rice and long staple cotton suffered the most rapid decline in wealth; (4) the white counties during the Reconstruction gained slowly in wealth, and in them developed a few cities like Atlanta, Birmingham, and Galveston (some railway lines also being constructed); (5) the census of 1870 showed that in the white districts economic conditions were becoming

* See Vol. V.

normal and by 1880 they were, on the whole, wealthier than in 1860.

In the Black Belt the principal cause of decline was the inefficient labor. For a year or two after the war land prices were high, but in 1867 and 1868 they began to fall rapidly. Louisiana plantations worth $100 to $125 an acre in 1860 were in 1868 on the market for $15 to $20, or for taxes. Alabama canebrake lands, held at $50 to $60 an acre in 1860, were offered at $3 to $15 in 1870. It was estimated that by 1869 half of the Southern plantations had changed hands. The statistics of the period are not reliable, for, as the director of the census of 1870 asserted, in the South "both property and industry are in such a condition of uncertainty that it has only been possible to deal with the question roughly and approximately." The fluctuations in estimates may be illustrated by the figures relating to property in Alabama.

VALUE OF ALL PROPERTY IN ALABAMA.

1860.	$175,824,622	(lands).
	215,540,000	(slaves).
1860.	725,000,000	(estimated true value of all property).
1866.	123,000,000	(estimated true value of all property).
1870.	156,000,000	(assessed value).
1875.	160,000,000	(assessed value).
1876.	135,000,000	(assessed value).

The table indicates merely a great decrease in wealth, for conditions were still so uncertain that values were unstable and statistics unreliable. In general, land values during the Reconstruction averaged about 50 per cent. of those of 1860, and the value of other property about 40 per cent., the percentage being higher in the white and lower in the black districts. Frequent tax and mortgage sales caused depression of values, and the heavy taxation of the Reconstruction governments not only caused a decline in actual wealth, but resulted in the lowering of assessments, as owners endeavored to withdraw property from taxation.

The following are the only general statistics by which one may measure the decrease or increase of wealth in the South, and these are of slight service—the figures of 1860 and 1870 dealing only with taxable property, while those for 1880 cover exempt as well as taxable property. Still, a comparison of the estimated wealth of 1870 with the estimate of 1860 shows how hard a blow was dealt to property by the war and the conditions that followed it.

SOUTHERN PROPERTY VALUES, 1860–1880.

	South Atlantic States Omitting Delaware.	South Central States with Missouri.
1860.....	$2,837,129,460	$3,950,299,046
1870.....	1,721,649,450	2,749,684,207
1880.....	3,623,000,000	5,444,000,000

A more accurate impression may be gained by a consideration of the statistics of 1860 and 1870 relating to property values in each state.

REAL AND PERSONAL PROPERTY, 1860 AND 1870.

The figures represent millions of dollars.

	1860			1870		
	Assessed Values.		True Values. Real and Personal.	Assessed Values.		True Values. Real and Personal.
	Real.	Personal.		Real.	Personal.	
Alabama.....	155	277	495	117	38	202
Arkansas.....	63	116	219	63	31	156
Florida.....	21	47	73	20	12	44
Georgia.....	180	438	645	144	83	268
Indian Territory and Oklahoma	No statistics are available before 1890.					
Kentucky.....	278	250	666	311	98	604
Louisiana.....	281	155	602	191	62	323
Maryland.....	65?	231	376	287	137	643
Mississippi.....	158	352	607	118	59	209
Missouri.....	153	113	501	418	137	1284
N. Carolina.....	116	175	358	83	47	260
S. Carolina.....	130	359	548	119	64	208
Tennessee.....	220	162	494	223	30	498
Texas.....	112	155	365	97	52	159
Virginia.....	418	239	793	279	86	409

It will be seen that the greatest loss as a result of the war and of Reconstruction naturally was in "personal and other" property. The largest single loss was, of course, that of the capital invested in

slaves. But it must be remembered that the figures above are assessed values, and that in 1870 much property was assessed for taxation that in 1860 was exempt. The heaviest losses in real and personal property, outside of Virginia, were in the lower South, notably in Alabama, Georgia, Mississippi, North Carolina, and South Carolina. The heaviest decline in personal and other property was in the states having the greatest negro population. In real property it will be noticed the border states fared better than those of the lower South.

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CHANGES IN PROPERTY VALUES SINCE RECONSTRUCTION.

SINCE 1880 property values have rapidly increased in the South. This increase was due less to real than to "personal and other property," to the development of transportation agencies, of manufacturing and mining industries, and to the increase of banking capital. Owing largely to the inadequate returns from the fertile Black Belt districts, land values have not increased in proportion to other forms of property. In most of the Southern states it constitutes a smaller percentage of the total wealth than is the case in other sections. The fol-

lowing table shows the proportion of real property to total property for typical states:

Alabama.....	46 per cent.	Mississippi.....	40 per cent.
Arkansas.....	49 per cent.	South Carolina..	43 per cent.
Georgia.....	48 per cent.	West Virginia...	43 per cent.
Louisiana.....	47 per cent.		

In other states the proportion ranges from 50 to 65 per cent. The rapid development of manufacturing and mining, etc., since 1880 has not been accompanied by a corresponding increase in agricultural industries, and for a long period the percentage of real property will probably remain relatively small. With denser population and the opening up of unoccupied lands to scientific farming, trucking, etc., a change will come.

Some of the new sources of wealth may be examined and the values of 1880 compared with the most recent estimates. In manufacturing, for example, the capital invested has increased from $257,244,564 in the precarious industries of 1880 to $2,110,000,000 in 1909. In one field of manufacturing, the cotton mills, the increase in plant was from 422,807 spindles in 1880 to 4,152,592 in 1900, and 10,650,000 in 1909. The capital in the same industry increased from $22,000,000 in 1880 to $61,000,000 in 1890, to $108,000,000 in 1894, and to $298,900,000 in 1909. The value of farms increased from $2,300,000 in 1880 to $4,000,000 in 1900. The resources of the national banks in the South have also multiplied from $171,461,172 in 1880 to $777,632,565 in 1909. In 1860 the total banking resources of the South amounted to only $117,452,781. Other new sources of wealth, such as the coast fisheries, trucking, fruit growing, mining and lumbering have increased correspondingly. The wealth of the South in 1909 was six million dollars greater than that of the entire United States in 1860, though the South in 1909 had a population three mil-

lion less than the United States in 1860. Since 1880 the South has increased faster than the entire United States in everything except population, true value of all property and in the value of farm products. Reduced to a percentage basis, the increases from 1880 to 1909 have been as follows:

Population	67 per cent.
True value of property	182 per cent.
Capital in manufacturing	720 per cent.
Capital in cotton mills	1239 per cent.
Capital in oil mills	2426 per cent.
Resources of national banks	586 per cent.
Capital of national banks	260 per cent.
Deposits in national banks	824 per cent.
Deposits in other banks	648 per cent.

The wealth of the South, except Texas, is still less per capita than that of any other section. The following table illustrates the changes in per capita wealth in certain groups of Southern states since 1860.

SOUTH ATLANTIC STATES, OMITTING DELAWARE.	SOUTH CENTRAL STATES, WITH MISSOURI.
1850 $333	$299 (Taxable property)
1860 537	598 " "
1870 307	268 " "
1880 495	435 (Taxable and Exempt)
1890 579	574 " "
1900 640	583 " "
1904 716	659 " "

The wealthiest states of the South are (total values being considered), Virginia, Maryland, Kentucky, Tennessee, Georgia, Louisiana, and Texas. Some of these states, however, are poorer, per capita, than others; those thus poorer being in the lower South from North Carolina to Mississippi. In these the per capita wealth is less than $500. In total wealth the Southern states ranked with the other states in 1900 as follows:

7	Missouri.	24	Louisiana.
14	Texas.	27	Alabama.
17	Maryland.	28	North Carolina.
18	Kentucky.	31	Arkansas.
19	Virginia.	34	Mississippi.
20	Tennessee.	36	South Carolina.
21	Georgia.	38	Florida.

The following estimates of the value of all property will serve to indicate the changes in the census groups of Southern states since 1880:

	SOUTH ATLANTIC STATES, OMITTING DELAWARE.	SOUTH CENTRAL STATES, WITH MISSOURI.
1880	$3,759,000,000	$3,882,000,000
1890	5,132,980,666	6,401,281,019
1900	6,679,190,048	8,207,174,377
1904	7,936,882,961	10,052,467,528
1909	21,211,179,600	Both sections.

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FLUCTUATION IN PRICES OF AGRICULTURAL PRODUCTS.

COTTON occupies the position of most importance and is the most typical crop for the discussion of the fluctuations of agricultural prices since the war, as before. There has been the same remarkable growth in both demand and supply—continuous for even such short periods as five years but variable from year to year beyond all prevision.

The article is graded and sold by sample in a world market whose widely separated parts are in constant and uninterrupted communication. The business has been so organized that information on all matters bearing upon the market is obtained from agents who are regularly employed to report at frequent stated intervals and who can in an emergency respond to a special call in a very brief space of time.

There is no feature in the course of the business from the preparation of the soil for planting to the movement of the fabrics from the jobbers' stocks that does not come under the notice of the agents, who report the facts as they find them in the United States and abroad. While many trade papers and commercial organizations maintain more or less comprehensive systems of correspondents, the regular monthly reports on the crop made up by the Federal government agents and published by authority of this government are awaited with great expectancy; and any divergence between the government estimates and the estimates made by the cotton interests on private information agitates the market seriously. It has come to pass that the accuracy of the government reports is a matter of public moment; that any inaccuracy, manipulation, or unauthorized publication to a few and not the public causes a real loss to some who are entitled to look to the government for protection. The work of the bureau is well done and occasions for serious criticism are rare.*

As a result of this elaborate and efficient organization for the accumulation and dissemination of public information, the market has become as sensitive as a scientist's balances to every rumor of the least alteration in the relation of supply and demand. False rumor credibly reported is no less effective than true; and is worse in its effects since it must be the result of evil intent or of blunder where blundering cannot pass as a venial fault. While it is beyond doubt that the general and prompt publication of all information must keep the price in the main pretty true to the actual state of demand and supply, both the number of the fluctuations and often

*For an instance of unauthorized publication see the newspapers of July, 1905; *The Nation*, Vol. 81, p. 27.

times the extremes of high prices and of low prices represent the feverish excitement of the exchanges and the advantage which the cooler and stronger or more audacious speculators are able to take of those unexpectedly caught in a weak position by a sudden disturbance.

While the cotton merchants have become so thoroughly organized, it has thus far proven impossible to secure effective organization of the planters to regulate the acreage or to hold back the crop in order to stimulate and take advantage of higher prices. Some planters, working with borrowed capital, are under obligations to dispose of their crop under conditions which are most likely to favor the dealers, who are their creditors. But the regularity with which, from year to year, half of the crop comes into sight during September, October, and November; and about 40 per cent. more comes into sight during the three months that follow, would indicate that those who are able to hold are unwilling to take the risk. The wheat harvest is briefer and the bulk of the wheat crop is in sight in three months. Though the wheat farmers are believed, on good grounds, to be more generally able to hold than the cotton planters they seem to be no more willing to assume the risks.

In the middle of the nineties, as fifty years before in the middle of the forties, cotton prices were low and cotton planters gave signs of serious and prolonged distress. At the time much was said—and believed—about the wickedness of those who were manipulating both legislation and markets against the interests of the farmer. But it was in the nature of the case that the commissions of the factors and brokers and the profits of successful speculators should go on without consideration for the distress of the planters; and it is now possible to see in the

situation the working of economic laws sufficient in scope and importance to account for what happened without the necessity of imputing more to the manipulations of conspirators than can be proven; for their activities were not different at that time from their activities at other times and wholesale charges of constant manipulation have not stood the test of investigation.

Quantities consumed and quantities produced had gone on matching and overmatching each other until the producer could not longer afford to underbid former prices to stimulate a larger demand; neither could he without sacrifice turn to other uses of the soil. If increased demand at the higher level of prices had not come, a greater diversion of soil to other uses must have come. A new demand from local mills was one of the conspicuous features of the new situation. Economies have repeatedly been made in the costs of marketing, and the proportion of the consumer's price which is absorbed by the distributer's costs is small and not likely to increase. The producer's chances of obtaining his share of the consumer's price are good and not likely to decrease.

Southern wheat is used primarily to supply local consumption, with some sales for export through Southern ports and with occasional sales to or purchases from the adjacent parts of the western field according to the conjuncture of the market. Generally, prices follow the course of Chicago prices at a distance above them approximately equal to the freight charges on southbound shipments from convenient sources of supply. What is true of wheat is true of that portion of the corn crop which seeks a market away from the farm. But corn is used for feeding hogs and stock for the market and a little more or less can be turned in this direction quite

easily to counteract the tendencies of the general market.

The tobacco market has demonstrably suffered in the last ten years from the organization of the buyers. Several conditions have favored this result. The production is localized because of the limitations of suitable soils and climates. The different varieties, which are partly the result of differences in the plant and partly the result of curing, have different and to a degree non-interchangeable markets. For the conveniences of taxation, in this country and abroad (where in some countries its manufacture is a government monopoly), the manufacture is under regulations that facilitate concentration. Finally, ambitious men, controlling amounts of capital that a few years ago were unheard of under one management, have succeeded in organizing the business so that the producer was placed at a serious and constant disadvantage in bargaining with them. The grower, without adequate information, without cooperation, and solicited to sell privately from the barns—especially in the Kentucky and Tennessee districts,—feared that if he declined to sell his neighbor might sell and thereby spoil his prospect for even so good a market later. He had also to sell to the agents representing the pooled interests of many buyers. The farmers were thus driven in desperation to organization. The period since they organized has been stormy with the internal troubles of the organizations; and with the acts of lawless violence towards those who would not join or who were suspected of dealing with the pool on the outside and towards those who even indirectly and in the line of their public duty (like that of the railroads as common carriers) gave aid or comfort to the other party. While these things were going on there was a public sentiment prevailing which, while

it might not counsel violence before the acts, would sympathize with and condone it after the act. The result of the struggle already is to secure somewhat better conditions of sale and somewhat improved prices. There is also the further result that the farmers have learned by hard experience how to coöperate, how to conduct themselves when responsible for the management of a transaction in which others are interested and which is in the nature of a trusteeship; and how to have the necessary confidence in the men to whom such transactions must be committed. The success of local lamb clubs, organized to hold back the supply until the lambs have obtained their first growth and to sell at auction in the presence of competing buyers, is evidence on a small scale of the weakness of the unorganized producers and of the possibilities of protection open through organized coöperation.

The producers of berries, fruits, and vegetables are even more exposed to fluctuations and to bargaining on terms unfavorable to the seller, since these crops admit of less effective grading and are so perishable. Complete knowledge of whither all of yesterday's shipments went and where to-day's best market should be looked for is necessary to steady prices; but it is information that many men in many places cannot take advantage of except through the functioning of a bureau of centralized information, decision, and control.

The newly developing rice culture seems to be starting off in the hands of men possessing proportionately more capital and more easily organized to protect themselves in bargaining.

Wages of labor do not fluctuate rapidly and wages of farm labor are largely controlled by custom. Southern planters represent all kinds of relationships with the labor on their lands. There is much

renting on shares with local and individual differences in the amount of land the landlord furnishes, and in his corresponding share of the product. When the agreement is for a money rent there are the same differences. Ordinarily the owner furnishes not only the land, but a large part of the capital besides in the shape of stock, implements, seed, dwellings for the tenants, and even supplies for a considerable part of the year. The amount of farm labor working for money wages is only a small part of the labor supply. For this the prices have appreciated, and still the complaint is of insufficient and ineffective help. The farmer is suffering from the presence of labor of inferior quality in point of intelligence and thrift, and from the abundance and attractiveness of employment for labor of this sort in other directions. It remains to be determined by experience whether really attractive conditions offered to selected laborers would not give a return in efficiency that would justify the increase in the price.

RELATIVE PRICES OF SELECTED AGRICULTURAL PRODUCTS EXPRESSED IN TERMS OF 100 AS AN INDEX NUMBER FOR THE PRICE OF EACH ARTICLE IN 1860.

(Aldrich Report on Wholesale Prices and Wages, Second Session, 52d Congress, S.R. Vol. III, pp. 104, 106, 107.)

Year.	Corn.	Cotton Up. Mid.	Hemp Rough.	Meat Beeves.	Meat Hogs.	Tobac.	Tobac. Ky.	Wheat.
1860.....	100.	100.	100.	100.	100.	100.	100.	100.
1861.....	79.3	198.8	56.	93.9	56.	95.3	123.5	92.3
1862.....	86.5	522.5	84.	91.4	58.7	186.9	220.6	86.7
1863.....	126.2	781.5	108.	110.3	61.7	178.3	210.3	101.2
1864.....	229.8	1119.1	.....	192.3	186.3	200.2	314.7	116.4
1865.....	132.4	453.2	188.	212.9	218.4	125.8	294.1	140.5
1866.....	138.2	365.3	240.	202.	166.1	107.7	229.4	115.9
1867.....	192.7	198.8	.....	174.7	110.3	137.9	155.9	213.4
1868.....	164.4	247.4	160.	158.6	150.4	166.5	155.9	193.
1869.....	141.1	254.3	156.	179.	155.8	168.	141.2	119.1
1870.....	126.5	156.1	176.	161.	134.3	158.1	120.6	84.7
1871.....	110.5	182.7	120.	143.2	77.1	187.5	117.6	118.2
1872.....	93.8	173.4	84.	157.	80.6	181.	132.4	118.5
1873.....	97.1	169.9	96.	137.6	77.2	215.5	120.6	130.3
1874.....	139.3	143.4	128.	147.4	103.3	180.2	185.3	121.5
1875.....	96.4	121.4	116.	154.3	133.2	160.8	170.6	94.6
1876.....	82.5	101.7	88.	128.6	97.4	145.7	147.1	101.3
1877.....	84.7	102.9	100.	118.	86.8	148.9	111.8	117.2
1878.....	70.7	99.4	76.	114.1	60.8	137.4	97.1	106.6
1879.....	76.4	96.	80.	124.8	63.	119.3	.....	84.2

Year.	Corn.	Cotton Up. Mid.	Hemp Rough.	Meat Beeves.	Meat Hogs.	Tobac.	Tobac. Ky.	Wheat.
1880.....	75.4	106.4	104.	128.3	83.6	137.8	97.1	112.3
1881.....	109.3	109.2	96.	155.3	105.8	134.4	132.4	93.3
1882.....	100.7	105.8	84.	168.8	134.4	141.1	120.6	116.4
1883.....	90.2	98.3	88.	154.3	82.	138.2	117.6	88.8
1884.....	89.5	93.6	88.	160.1	83.6	152.6	120.6	83.5
1885.....	71.5	93.1	140.	136.2	68.3	122.3	116.2	71.1
1886.....	68.1	87.9	108.	129.1	74.8	100.6	111.8	74.
1887.....	75.1	87.9	92.	124.5	81.2	122.5	114.7	73.6
1888.....	75.1	96.5	76.	140.7	100.8	110.8	117.6	71.
1889.....	57.8	100.6	96.	111.2	74.7	122.2	111.8	86.
1890.....	81.7	96.	104.	121.	70.	129.8	111.8	70.8
1891.....	89.1	80.3	92.	138.1	79.3	140.	.....	87.7

YEARLY RELATIVE PRICES OF COMMODITIES, 1890 TO 1908.

(Average price, 1890–1899, equals 100.)

(Bulletin of the Bureau of Labor, March, 1909, p. 338 ff.)

Year.	Corn.	Cotton.	Wheat.	Meat Beeves.	Meat Hogs.	Rice.	Sugar Gran.
1890.....	103.8	142.9	118.9	89.5	89.2	107.8	130.5
1891.....	151.	110.8	128.1	109.2	99.2	113.5	99.7
1892.....	118.3	99.	104.9	95.4	115.7	101.4	92.1
1893.....	104.2	107.2	90.1	103.	148.6	81.8	102.3
1894.....	113.7	90.2	74.4	96.3	112.2	93.8	87.
1895.....	104.	94.	79.9	103.7	96.6	95.	87.9
1896.....	67.8	102.	85.4	88.3	78.3	92.5	95.9
1897.....	66.9	92.2	105.8	99.5	82.8	96.6	95.1
1898.....	82.6	76.9	117.8	102.2	85.6	108.4	105.2
1899.....	87.6	84.7	94.7	113.2	91.8	108.2	104.2
1900.....	100.2	123.8	93.7	111.3	115.5	97.7	112.8
1901.....	130.6	111.1	95.7	116.6	134.5	97.7	106.8
1902.....	156.9	115.1	98.7	139.5	155.2	99.6	94.2
1903.....	121.1	144.7	105.1	105.8	137.2	100.9	98.2
1904.....	132.6	155.	138.3	110.9	116.7	78.6	101.
1905.....	131.7	123.1	134.5	111.2	120.2	74.3	111.2
1906.....	121.8	142.	105.6	114.2	142.2	84.5	95.5
1907.....	138.8	153.	120.8	122.9	139.2	95.2	98.4
1908.....	179.9	134.8	131.8	127.4	129.5	111.2	104.5

The Index number 100, which is the average price for the ten years 1890 through 1899, stands for the following prices respectively: Corn, $0.3804 per bu.; cotton, $0.07762 per lb.; wheat, $0.7510 per bu.; meat, beeves, $5.0275 per 100 lbs.; meat, hogs, $4.4163 per 100 lbs.; rice, $0.0561 per lb.; Sugar, gran., $0.04727 per lb.

Wages of agricultural labor in the South at certain periods between 1866 and 1895 (G. K. Holmes, Agricultural Production and Prices, Year Book Department of Agriculture, 1897, 586): 1866, $11.80 per month without board; 1869, $12.40; 1875, $13.30; 1879, $12.65; 1882, $14.67; 1885, $14.27; 1888, $14.54; 1890, $14.77; 1892, $14.86; 1893, $14.07; 1894, $13.04; 1895, $12.71.

TOTAL CROP OF COTTON IN THE UNITED STATES.*

Year Ending August 31st.	Average in 1000 Bales.	Year.	Maximum in 1000 Bales.	Year.	Minimum in 1000 Bales.
1866–70.....	2475.0	1870	3123	1867	2097
1871–75.....	3852.0	1871	4352	1872	2974
1876–80.....	4943.0	1880	5761	1877	4474
1881–85.....	6086.2	1883	6950	1882	5456
1886–90.....	6875.2	1890	7311	1887	6505
1891–95.....	8367.8	1895	9901	1893	6700
1896–1900.....	10033.0	1898	11189	1896	8533
1901–05.....	10710.0	1905	13438	1902	9509

*This and the following tables are based on Hammond's Table in *The Cotton Culture and the Cotton Trade;* except the last two lines (1896–1900 and 1901–1905) which are computed from figures in the Year Books of the United States Department of Agriculture for 1901 and 1905.

TOTAL EXPORTS OF COTTON FROM THE UNITED STATES.

Year Ending August 31st.	Average in 1000 Bales.	Maximum in Year.	1000 Bales.	Minimum in Year.	1000 Bales.
1866–70.....	1688.0	1870	2206	1869	1466
1871–75.....	2666.4	1871	3169	1872	1957
1876–80.....	3398.0	1880	3885	1877	3031
1881–85.....	4160.8	1883	4767	1882	3583
1886–90.....	4620.2	1890	4950	1886	4336
1891–95.....	5666.2	1895	6818	1893	4445
1896–1900.....	6875.0	1898	7576	1899	6201
1901–05.....	7097.0	1905	8610	1904	6126

TOTAL CONSUMPTION OF COTTON IN THE UNITED STATES.

Year Ending August 31st.	Average in 1000 Bales.	Maximum in Year.	1000 Bales.	Minimum in Year.	1000 Bales.
1866–70.....	826.8	1869	926	1866	666
1871–75.....	1209.4	1874	1306	1871	1110
1876–80.....	1517.4	1880	1790	1876	1352
1881–85.....	1721.4	1882	1965	1883	1073
1886–90.....	2247.4	1890	2391	1887	2112
1891–95.....	2641.4	1895	2947	1894	2320

AVERAGE NEW YORK PRICE OF COTTON.

Year Ending August 31st.	Average in Cents @ lb.	Maximum in Cents Year.	@ lb.	Minimum in Cents Year.	@ lb.
1866–70.....	30.53	1866	43 20	1870	23.98
1871–75.....	17.52	1872	20.48	1875	15.00
1876–80.....	11.68	1876	13.00	1879	10.38
1881–85.....	11.06	1882	12.16	1885	10.54
1886–90.....	10.44	1890	11.53	1886	9.44
1891–95.....	7.82	1891	9.03	1895	6.50
1896–1900.....	7.31	1900	10.15	1898	5.75
1901–05.....	9.56	1904	12.98	1902	8.13

AVERAGE LIVERPOOL PRICE OF COTTON.

Year Ending August 31st.	Average in Pence @ lb.	Maximum in Pence Year.	@ lb.	Minimum in Pence Year.	@ lb.
1866–70.....	11.76	1866	15.30	1870	9.89
1871–75.....	9.00	1872	10.78	1875	7.67
1876–80.....	6.46	1880	6.94	1877	6.16
1881–85.....	6.17	1882	6.70	1885	5.76
1886–90.....	5.55	1890	5.97	1886	5.14
1891–95.....	4.27	1891	4.94	1895	3.41

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FICTITIOUS DEALINGS IN AGRICULTURAL PRODUCTS.

The producer and the consumer are separated from each other in both space and time. Within the limits of barely a dozen of the American states, and within six months of time, the greater part of the cotton which will supply the consumption of the world for the next twelve months is made ready for market in obedience to the nature of the maturing cotton plant. In similar obedience to natural conditions, a period of barely three months witnesses the harvesting of the North American wheat crop on which tens of millions of people in this country and abroad must depend for flour during a twelvemonth. Somebody must take the trouble and risk of holding and caring for these stocks and of delivering them when they are wanted, in the right place at the right time and for a price that will on the one hand provoke a demand, and on the other reimburse costs with profits.

In case of necessity the producer might undertake to do it; or the consumer for his own protection might lay in store. But it can be no wonder that the distributer should arise to take advantage of the opportunity—the middleman who will undertake to mediate between supply and demand, assuming the risks for the chances of a profit. He must be able to form a sound judgment about what will be wanted, when, where, and at what price. He must have the capital to back his judgment; and he must have trade knowledge and means of information to protect his capital. His minimum price to the producer is what will call out the adequate supply for the future periods. His maximum price to the consumer is what will serve to carry off the existing stock before the

new supply comes on. Whatever he can get between these margins, over costs of protecting and transporting, is his for profit. Not all of the work is done by one distributer; there are generally several in the series that functions between producer and consumer. Some of them avoid the assumption of any risks, such as the transportation companies and certain produce brokers, when they sell strictly for commission. But such as do take the risks must become possessed of so much better information and so much better connections with the market than either producer or consumer that these, not without some reason, sometimes fear them as persons able to take advantage of the weaknesses of their position.

The distribution of cotton and wheat has become particularly well developed in connection with the growth of means of communication and transportation. These articles are so durable and capable of such exact classification that from a dozen to a score of grades can be distinguished, and traders can undertake contracts to deliver or to receive any quantity to correspond in quality with standard samples. It was in the sixties that trading in wheat by sample for future delivery first assumed such dimensions as to lead to the voluntary organization of those interested for its formal regulation. At the end of that decade and the beginning of the next trading in cotton was similarly organized. The motive for organization was the desire of the millers to secure protection from the violent fluctuations of raw cotton which disturbed their calculations of the selling price of fabrics. The middlemen were found who would undertake, for a stipulated price, to deliver at a stated place and future time cotton of a designated quality which they did not then have, perhaps, but which they were willing to take the risk of buying in the meanwhile for a price that would give them

satisfactory profit on the speculation. The business grew rapidly and took on such refinement of process that speculators began to contract with each other to receive or to deliver in the future, the one set counting on being able to buy under the selling price, and the other set counting with equal confidence on being able in the meanwhile or soon after to resell at an advance. The excitement of the business and the alternation of winnings and losses has been sufficient to attract men into the business, and the sales for future delivery, in times of active trading, on the New York or New Orleans exchanges reach aggregates not infrequently larger than the material calculated to be in existence. When the day of settlement comes the speculating buyers are more willing to settle with the sellers by giving or receiving the difference between the contract price and the market price than to insist on delivery. Other exchanges have proven too small for successful trading in futures.

Some have thought that such offers of goods for future delivery in excess of actual stocks created a fictitious supply that would have the effect of a real supply in depressing the market unnaturally, against public policy, and so illegitimately, to the disadvantage of the producer. Such was the opinion expressed, among others, by so influential a body as the House Committee on Agriculture, of which Mr. Hatch was chairman (53d Cong., 2d Sess., House Report No. 845). But the Industrial Commission which investigated the distribution of farm products and made report in 1901 was unable to verify the opinion.

It appears from investigation that there are about thirty interior towns which handle about half of the cotton crop, each handling 10,000 bales per annum and upwards. These towns, together with twelve

port towns, handle practically the entire crop. In the first three months after picking begins, that is during September, October, and November, half of the crop, taking one year with another, will come upon the market in these towns. By the end of February, in three months more, from 88 per cent. to 90 per cent. of the total crop will have come into sight. Seven or eight of the remaining 10 per cent. will drift in before the end of the ninth month, at the end of May. Week by week reports are made showing receipts and sales and movement to domestic mills and for export; and comparisons are made with preceding years. On the basis of these reports sales are made on the exchanges, particularly in New Orleans, New York, and Liverpool. Sales are public; and whatever advantage an expert dealer in futures may have over an outsider who has yielded to the fascination and placed an order with his agent, he has so little advantage over his fellow professional dealers that he must make purchases and sales in full consciousness that he is doing it in the presence of those competent to detect and take advantage of any mistake on his part.

The Industrial Commission undertook various calculations and comparisons to determine whether the speculating distributer had any peculiar advantage. But none could be discovered that did not belong to his expertness, his possession of capital, and the nature of the business; and these were exercised under such conditions of publicity and competition as to reduce the personal advantage and the class advantage to the minimum. Comparisons were made through a long series of years of the prices of futures, first, with the prices of spot sales at the time that the future sales were made, and, secondly, with the price of spot sales at the time that the future sales were settled. Dates were chosen to represent

the period when, the old crop being nearly exhausted, speculation was on the size of the new crop whose harvest was just beginning; and also to represent the period when so much of the crop had come into sight that its size could be estimated pretty closely, and speculation was on the demand that might or might not suffice to carry off supply in the normal period. The results showed that in some years the prices fell so that sellers could make their purchases for delivery advantageously, and in some years they rose to the advantage of the buyers. There was no regularity of alternation and no certain preponderance of one set over the other. Those who sold futures became buyers for an equal amount in the interval before settlement, and thus had to operate to sustain the very market which it was their desire to see depressed by the operation of other causes; and any additional buying must have been, to some extent at least, for the purpose of hedging and must have tended to distribute the losses and the gains among more speculators. There is no evidence that any one is seriously deceived about the amount of stock available; though some may have their confidence in their own judgments disturbed by the evidence of positive contrary judgments of others. It does not appear that the sales of futures affects the price of spot sales; but only that the conditions that affect the one may also affect the other.*

Other investigations showed that the charges for marketing the crop were becoming fewer in number and smaller in amount. Uneconomical methods were being forced out of use by competition with more economical ones. It was calculated that the cost of distributing amounted to only fifty cents

*See the argument of Daniel J. Sully, *North American Review*, Vol. 178, p. 194, February, 1904, to prove that the high prices prevailing during the time he was trying to corner the market were not the result of manipulation but of natural conditions.

per bale in the case of cotton taken from Carolina farms to the local mills; to $3 per bale for cotton sent to the average Northern and Western mill; and to $5 to $7.50 for that taken to the foreign mill. It is plain that the producer and the consumer who make spot dealings must be getting the full advantage (or disadvantage) of spot prices at the time of sale. In like manner they must get the advantage (or disadvantage) of any change in the price of stocks which they choose to carry for a time; and if they sell or buy for future delivery theirs also is the resulting gain or loss.

It is a fact that prices are "fixed" on the cotton exchanges. Neither producer nor consumer is called into consultation; there is no popular convention or representative body that meets to determine the price by majority vote. But those who decide are such as voluntarily take the risks of buying more than they can sell at a profit, if their prices are placed too high; and of selling more than they can buy at a profit if, prices are placed too low. Even if they have not taken the judgment of the producer and consumer as definitive, they have used all the information that both could furnish.

It is also a fact that there is a range between the lowest and the highest price that is frequently, even for periods of no great length, several times the cost of storage and insurance for the period. Now if the middleman could buy of the producer at the minimum and sell to the miller at the maximum, he would win the difference, less costs. But there is no machinery of trading or art of manipulation by which he can surely do this. But every day, day after day, at all prices, spot sales are made to everybody—by the producer to the middleman, by the middleman to the miller, and by middlemen to each other; and sales for future delivery create groups

of buyers who will not see the price go down with any less concern than those who have sold short will see it go up. There is nothing in the membership of either group that should in itself make it either inferior or superior to the other. If manipulation were possible it must neutralize itself. Withal, the trading is so public and there are so many to take part in it that it is inconceivable how the speculating middleman as a class can take advantage of either the producer or the consumer as a class, because of fictitious sales or manipulation. Such superiority as the middleman has is due to the superiority of the expert trader over the isolated producer and consumer in judgment of the market and in capital to back that judgment.

No figures are available to show how profits and losses have been distributed on a particular bale or quantity of bales from the time when the uninformed producer began to exercise his choice to sell or to hold until the financially strong miller exercised his choice to supply the needs of his factory from his storehouse or from the car. But the presumption is very strong that no one class can get all of the advantage all of the time; and that each class gets some of the profit some of the time as the natural conditions of the market give it the momentary advantage over the others.

It would be difficult to demonstrate how many times it ought to be necessary under average conditions to sell and resell, buy and rebuy the same bale in order to effect the necessary adjustment of prices to equate supply and demand. It would doubtless be equally impossible to establish whether the number and aggregate of sales per month or year were more than necessary and contained an excess that served no economic purpose. But it is popularly believed and very plausible that the trading when

some dealer is trying to make a corner serves no good purpose—except to counteract his overambition—and that it has a disturbing and demoralizing effect upon those whose confidence in their own judgments is shaken and hurts needlessly those who cannot postpone their transactions to a more normal period. Factitious reasons for provoking a fluctuation are against public welfare and are considered unethical, even when they are not unlawful in their character. Highly against public policy is trading by men whose business is in other lines, bank clerks and officers, partners in business concerns and others similarly engaged. They have not the necessary opportunities of forming careful judgments nor have they the time legitimately to give to it; and, most important of all considerations, when they fail—as some of them sometimes must fail—they jeopardize the business and property interests of those who have no direct connection with the market in question and who ought not to be made against their will and control dependent upon the fortunes of any man engaged in it. But none of these considerations affect the economic value of speculation reasonably regulated.

The conditions of speculative trade in wheat were investigated in the same way and the results obtained were equally clear and to the same effect. In that trade and in every other that was investigated there was apparent an increasing economy in the costs of distribution for the labor involved, for commissions on sales, for freights, weighing, packing, storing, hauling, etc., and there was every indication that the producer was not deprived of at least his fair share of the advantage.

In products like fruits and vegetables the risks are very different from those involved in cotton, cereals, or even beef and hogs. But what has been accom-

plished by the organization of growers in California and in a few other localities shows what might be accomplished in economy of costs and risks to the producers of this class of goods in the South.

The Commission made a very favorable report on the conditions of marketing the tobacco crop which prevailed in 1900. The Virginia practice of selling tobacco loose on the floor of the warehouse by auction in the presence of many competing buyers representing all markets, furnished conditions calculated to insure the producer the greatest possible advantage he could hope for in adjusting the supply to the demand and in reducing the opportunity of the middleman to take out excessive compensation for his risks. But the conditions that have developed in the Kentucky and Tennessee tobacco districts since 1900 show how the buyers, by organization, can eliminate speculation and secure permanent advantages in bargaining which are against public policy, since they clearly hurt the producer more than they benefit any other class. It would appear that speculation is not the only thing or the worst thing which the producer has to fear.

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MONEY, CREDIT, AND BANKING.

THE EFFECTS OF CURRENCY LEGISLATION.

THE Supreme Court of the United States in the case of the Veazie Bank *vs.* Fenno,* held that the tax on state bank issues imposed by act of Congress,† was valid and constitutional. This act was as follows:

"Every national banking association, state bank or state banking association, shall pay a tax of ten percentum on the amount of notes of any person, state bank or state banking association used for circulation, and paid out by them after the first day of August, 1866, and such tax shall be assessed and paid in such manner as shall be prescribed by the Commissioner of Internal Revenue."

The effect of the imposition of this tax upon state bank circulation was prohibitive; and the local currency which had served the purposes of the people up to the beginning of the War between the States, in however inefficient a manner, was thereby totally destroyed. But a more serious and significant effect of this legislation, and of the affirmation of its validity by the Supreme Court of the United States, was its political one. This was the definite determination and establishment by ultimate judicial decision of the right of taxation by the Congress of the United States (as was stated by Mr. Justice Nelson in his dissenting opinion in Veazie Bank *vs.* Fenno) of the powers and faculties of the state governments, which are essential to their sovereignty, and to the efficient and independent management and administration of their internal affairs, even to the ex-

* 8 Wallace, 533.
† 14 Statutes at Large, 146 Revised Statutes of the United States §3412.

tent of thereby prohibiting and destroying such management and administration; and it may be conservatively asserted that the long-cherished Southern theory of state sovereignty has at no time received a heavier blow than that inflicted by this statute and by its judicial interpretation.

The act of Congress giving a legal tender character to the "greenback" was another piece of Federal legislation whose post bellum judicial interpretation was tremendous and far-reaching. The Supreme Court of the United States, at its December Term, 1869, by a vote of five judges to three, held (in the case of Hepburn *vs.* Griswold *) that the act of Congress creating the "greenback" was unconstitutional in so far as it made the notes a legal tender for debts prior to the date of the passage of the act; and Chief Justice Chase delivered the opinion. In May, 1871, the Court, which had now been increased from eight members to nine, decided by a majority of one (in the Legal Tender Cases †), and without any change of opinion on the part of the judges who had decided Hepburn *vs.* Griswold, that the Legal Tender Act was constitutional and valid as to contracts made both before and after its enactment—reversing in toto its former decision. This interpretation of the Federal power, "to issue the obligations of the United States in such form, and to impress upon them such qualities as currency for the purchase of merchandise and the payment of debts, as accord with the usage of sovereign governments," was affirmed and emphasized by the Court in the later case of Jouilliard *vs.* Greenman,‡ and this affirmation was characterized by Mr. Justice Field, in a dissenting opinion of great power in the last named case, as establishing a principle,

* 8 Wallace, 603.
† 12 Wallace, 457.
‡ 110 U. S. Reports, 421.

which, "fully carried out, would change the whole nature of our constitution, and break down the barriers which separate a government of limited from one of unlimited powers."

The comment has been made upon this decision of the Court that it "came as a shock to many of the ablest statesmen, financiers, and political economists of the country, and although there has since been sought to be passed through Congress provision for the amendment of the Federal constitution expressly prohibiting such powers as this tremendously far-reaching decision of the court conceded it, the act and its interpretation still stand together in eloquent testimony that the 'heavy and unsteady hand' of Congress remains clenched upon the currency system of the country with a more relentless and unshaken grasp than ever before in all its history." *

The obvious effect of the ten per cent. bank tax was to destroy all note circulation other than that either immediately issued by the United States government, as the "greenback," or, such as was so under its auspices and authority as to be controlled by it, as the national bank note; and to abrogate in America that politico-economic principle—so long insisted upon by Southern statesmen and economists—that the function of banks is to facilitate the exchanges of commerce and further the interests of trade, but to have nothing to do with the government. The effect of the Legal Tender legislation was to establish and confirm in the Federal government the possession of such centralizing powers as were never claimed for it by the most ardent Federalist of the early days of the Republic.

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* Gordon: *Congressional Currency*, 200.

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CURRENCY PROBLEMS IN THEIR RELATION TO SOUTHERN ECONOMIC DEVELOPMENT.

THE circulating medium, or currency, is the life-blood of a country's economic existence. It is the consensus of opinion among economists and financiers that a proper system of banking best supplies such a currency. The United States note, or "greenback," issued by the Federal government under Congressional enactment has not, in the judgment of those best qualified to determine its value, proved to be such a currency, since the establishment by judicial interpretation of its legal tender quality. Under the system of currency represented by the "greenback," the United States is made the prey of every gold-seeking country of the world. The treasury itself is at the mercy of the bankers and brokers, who find a profit in the exportation of gold coin and bullion; and it has happened more than once, in the post-bellum history of the United States Treasury, that gold procured to maintain the required reserve by the issue of government bonds has been shortly thereafter withdrawn from the treasury through the instrumentality of "the endless chain" of the "greenback." This problem—which is likely to remain one so long as the Federal government continues to issue a legal tender paper currency—is one that affects North and South alike,

and is not confined in its results to any section of the country.

The National Banking system, in its restrictions and limitations upon the basis of the currency it issues, offers another serious problem of currency operation. Government bonds are the foundations of the national bank currency; and the fact that, while this furnishes the sole security for the banking currency of the country, it involves a deficiency of elasticity, is in the judgment of sound economists and financiers the greatest defect of the system. To this lack of elasticity may be added a further problem that seems to be connected with the currency system under post-bellum Federal legislation: a tendency on the part of the circulating medium to leave the rural sections of the country, and to accumulate in the great urban centres. This tendency is especially visible at times when the annual marketing of crops is necessary. Thus the rigid currency of Federal creation, disappearing from sections where it is most needed at periods when it is most needed, and becoming unnecessarily and embarrassingly redundant in the mercantile centres, presents a serious problem to the South, where the movement of the great staple crops of that section is a matter of first consideration. So distressing have these conditions appeared at times to the Southern and Western planters and farmers that they gave rise to the serious demand among them for the establishment by the government of a so-called "Sub-Treasury Scheme" providing for the issuance of government warehouse certificates against deposits of farm products.

The combination of these and other defects in the post-bellum currency system of the United States, all of them in a certain sense the product of Federal legislation, has brought about successive panics,

which have disturbed the economic conditions of the whole country. Among these may be mentioned the panic of 1873, following directly upon the failure of Jay Cooke & Co.; the panic of 1884, with which is connected the failure of Grant & Ward and the Marine Bank of New York; the panic of 1890, succeeding the failure of the Baring Bros.; and the panic of 1907, following the failure in New York of the Knickerbocker Trust Company.

Whatever other causes may have contributed—as doubtless there were many which did contribute—to these several panics, it may yet be safely asserted that the two great defects in the country's currency, which are above set forth, were potential factors in the great financial disturbances that have been here enumerated.

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AGRICULTURAL CREDIT AND CROP MORTGAGES.

The poverty of the planting classes at the close of the War of Secession made necessary some way of securing credit in order to resume agricultural operations. The system in vogue before the war of securing advances from the factors in the chief market towns was re-adopted wherever possible. The high prices of tobacco, cotton, and other Southern crops made traders as well as planters anxious to profit by the revival of trade, and those factors whose business survived the war were willing to make advances whenever they could secure the funds.

These funds were usually supplied by the commission houses at the North or in Europe. Rates of interest were usually higher on the loans made to the planters than they had been before the war. The difficulty of obtaining labor during the Reconstruction days made it uncertain whether or not crops could be harvested. Planters no longer had slaves to stand as security and the greater risk in making loans had to be met by higher interest rates.

In order to facilitate the obtaining of credit nearly all the Southern states in the years following the war enacted the so-called " lien laws " which permitted the planters to mortgage their crops and gave to the holders of these mortgages a *prior lien* on the crops when they were harvested. The action of the legislatures in enacting these laws has been the subject of much hostile criticism, by writers who have observed the ill effects of the credit system on Southern agriculture. Yet this criticism is not warranted. The Southern farmer could scarcely have obtained credit in any other way than by mortgaging his crops, and the " lien laws " made this credit cheaper than would otherwise have been the case.

The factor did not, however, long remain after the war the chief agency for furnishing loans. Many of the factors were indeed ruined by the war and the blockade, and were unable to resume operations when the war was over. But there were other and more important reasons why they soon ceased to occupy the position of chief importance in the new credit system of the South. Changes in the system of land tenure and in methods of marketing the crops occurred which developed a new class of borrowers as well as a new class of lenders, without, however, fundamentally changing the old system of securing loans through crop mortgages.

The old plantation system gave way in large part

to a system of small farms cultivated by their owners or by tenant farmers working more or less under the direction of the former planter.* These tenant farmers and small land owners stood as much in need of credit as did the large planters. The extent of their farms and their business standing were, however, not such as to enable them to secure advances from money lenders at the port cities, oftentimes hundreds of miles away. Someone nearer at hand must be found who could make the desired advances and take crop liens as security.

At about the time that these changes in land tenure were taking place, changes in the methods of marketing the crops took place. The introduction of new methods of communication and transportation led to a system of interior buying. Merchants in the inland cities and even country storekeepers purchased the crops from the growers and sold them to buyers representing Northern or European brokers or even in some cases the manufacturers.†

It was the merchants who now assumed the business of making loans or advances on the crops. Where the port factors continued to share in the business, they did so largely through the agency of the country merchants.

The merchant is better able than any one else in the community to judge of the farmer's honesty, promptness of payment, and business capacity. He is also able to make his loans in the form of supplies which he is offering for sale, corn, bacon, clothing, furniture, agricultural implements, even mules or horses, and in this way he secures the sale of his goods. No fixed rate of interest is charged for the loans made in this way, but it is generally under-

* Von Halle, *Baumwollproduktion und Pflanzungswirtschaft*, II, 651–652.
† Hammond, *The Cotton Industry*, Part I, 294–5. Chapman, *The Lancashire Cotton Industry*, 123–4. Jacobstein, *The Tobacco Industry in the United States*, 73–75. Report of the Commissioner of Corporations on Cotton Exchanges. Part I, 39–42.

stood that the prices for the goods sold on credit are higher than when sold for cash. In fact such investigations as have been made of these prices show them to have been from 20 to 65 per cent. higher than they would have been if purchased for cash at the same or similar stores.* The loans made by the merchants do not run for a fixed time, but it is understood that payment is to be made as fast as the crop is harvested. The usual method of securing credit is for the would-be borrower to make arrangements with the merchant at the beginning of the planting season to advance him his food and supplies as they are needed. To protect the merchant, the farmer gives him a mortgage on his crops then growing or still to be planted.

Although the system of crop mortgages seems to have been necessary at the close of the war, there is no doubt but that its continuance has been detrimental to social and agricultural progress in the South. The new class of borrowers, small landowners and white and negro tenants, have come to rely on credit as a means of making purchases, usually unconscious of the fact that the costs of supplies have been vastly increased thereby. In fact, so general is the practice of obtaining credit in many sections of the South that cash sales are seldom or never made and the merchants themselves do not know the differences between cash and credit prices. The only check to the use of the credit system on the part of many, if not the majority, of the tenant farmers is the refusal of the merchant to make further advances, and this refusal is not likely to be made unless a loss is threatened to the latter by the probability of a crop failure or a decline in the price of the chief staples. A large number of the borrowers find at the close of the

* See cash and credit prices at Southern country stores, taken from State Agricultural Reports in Georgia and Louisiana, tabulated in Hammond's *Cotton Industry*, p. 153.

year that the receipts from their crops are insufficient to wipe out their indebtedness and they are obliged to renew their contracts with the merchants the following year. It is scarcely too much to say that the effect of the system of crop mortgages at the South has resulted in putting the small farmers, as borrowers, into a state of peonage to the advancing merchants as lenders.*

Not only does the credit system discourage thrift and economy, but it oftentimes prevents crop rotation and causes overproduction of the leading Southern crops, especially cotton and tobacco. These crops find a steady demand in the outside markets and the mechanism for marketing them has been developed to a high degree. They are for this reason given the preference by the merchants in making their loans. It is through the pledging of these crops to brokers and commission merchants that the country storekeeper himself obtains credit when he needs it to carry on his business. He, therefore, is inclined to insist that his customers shall grow these crops if they desire to borrow on the basis of crop liens. Furthermore, corn and bacon form the chief articles of sale to the small farmer in the South and it is to the interest of the merchant to discourage their home production as much as possible. The one-crop system of cultivation and dependence on the outside world for supplies which might easily be produced at home are thus both encouraged by the system of crop mortgages.

The disastrous results of the credit system in causing over production of such crops as cotton and tobacco, the failure of many merchants through an unexpected fall in the price of crops, the temporary exhaustion of the soil through continuance of the one-

* Holmes, *The Peons of the South*, Annals of American Academy of Political and Social Science, IV, 265–74. Von Halle, *op. cit.*, II, 652–4.

crop system, the constant urging of conventions of farmers and commercial classes to diversify crops and produce at home the food and forage needed and finally, the multiplication of country banks in the South have all assisted somewhat in releasing the more intelligent and progressive farmers from their state of dependence upon the advancing merchant. As yet, however, country banks and loan agencies are much less numerous at the South, outside of Texas, than they are in the agricultural sections of the North.

While it is not likely that if they existed, many of the tenant farmers could immediately become borrowers from them or that the banks could accept crop-liens as security, it is probable that the more ambitious, thrifty, and least dependent of the small farmers could, on the basis of personal security, obtain loans from these banks.* In this way they would be enabled to diversify their crops and improve their farming. Slowly but surely their example would make itself felt on their less thrifty neighbors and a gradual release from the system of crop liens would be secured. That some such progress in the way of developing a better system of agricultural credit in the South will ultimately be made may safely be predicted.

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* See for an account of the development of such a system of borrowing in the upper portion of South Carolina, Harry Hammond, *Cotton Production in South Carolina,* Tenth Census of the United States, VI, 321. *Hand-book of South Carolina,* 154–5.

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BANKING IN THE SOUTH.

THAT portion of the South which joined the secession movement was impoverished by the Civil War, and at its close there was but a small amount of capital to employ in banking business. Owing to rigid limitation placed upon the total volume of national bank circulation under the first acts, and the inability of the South when apportionment was first made to take advantage of securing its share, this section when it recuperated was handicapped. Cotton and tobacco, however, were annual products having not only a national but an international market, and to move these crops the services of banking institutions were necessary. A few banks, in the border states for the most part, survived the misfortunes of war, and were consequently in a position to take advantage of peace. Such records as are available show that in 1865 there were in the South the following state banks: West Virginia, 3; Louisiana, 10; Kentucky, 38; Tennessee, 5.

Northern capital was employed in establishing national banks, especially in Virginia. As a large part of the banking had been carried on by state and private institutions, it is difficult to obtain complete statistics of banks in the Southern states for this period. Hardly any of the states required public supervision or periodical returns even when charters

were granted. From such reports as are available the following table has been compiled, showing the number of state and private banks at stated periods:

	State.	National.
1880	3,324	235
1890	914	664
1900	1,524	789
1908	4,794	1,808

Figures for state and private banks for 1880 and 1890 are taken from G. E. Barnett, *State Banking in the United States since the Passage of the National Bank Act.** Other figures are from reports of Comptroller of the Currency.

It will be observed that chartered banking, either state or national, did not develop rapidly during the first portion of the period. The reasons for shunning a national bank charter are clear. Under the Federal law, no bank could be chartered with a capital of less than $50,000, an amount altogether too large for the smaller towns to provide. Second, the rates of interest in the South were so high that there was no profit in investing capital in government bonds at the high premiums which were current, in order to take out circulation limited to but 90 per cent. of the par value of the bonds. Third, national banks could not loan on real estate, and as manufactures were in their infancy in that section, there was little inducement to subject bank capital to restrictions so poorly adapted to local conditions. Fourth, a national bank could not loan more than 10 per cent. of its capital to any one person. As the cotton business was frequently concentrated in the hands of a single individual in a town, this restriction proved impracticable. Between 1886 and 1892 there was a noticeable growth in national

* In *Johns Hopkins University Studies in Historical and Political Science*, XX, ii–iii, Baltimore, 1902.

banking, the number of institutions rising from 312 to 584. The panic of 1893 checked this development so that this number was not again reached until 1900. In that year the new provisions introduced by the Gold Standard Act permitted the incorporation of banks with a capital of $25,000. This met the needs of the South and the number of national banks rapidly increased, and nearly doubled in five years.

The figures for state banks are not so instructive, for the returns have been approximately complete only within recent years. The growth of this group since the later date has been steady. Until about 1890 the number of national banks exceeded that of state institutions in nearly every state, but during the next decade when national banks made no gain, the increase was still more rapid, due to the marked development in industry, the building of railroads, and the accumulation of wealth. The settlement of Texas has been responsible for a considerable part of this gain, the number of national banks increasing from 223 in 1900 to 535 in 1908. Only recently has banking under state charter in this state been allowed, with the exception of a brief period, 1868-1876, the several state constitutions until 1904 forbade the incorporation of such institutions.

In Georgia there was developed a successful system of allied banks, known as Witham's banks. This chain was composed of twenty-five or more institutions, each with small capital. A separate company known as the Country Bank Security Company took three-fifths of the capital in each bank, and the remainder was taken up by investors in the town in which the bank was located.

By states the number of banks in 1880, 1890, 1900, and 1908 is shown in the following table:

	1880			1890		
	National.	State.	Private.	National.	State.	Private.
Maryland.....	35	10	21	59	8	21
Virginia.....	17	44	33	32	76	31
West Virginia..	17	15	7	21	32	4
N. Carolina....	15	5	9	21	21	26
S. Carolina.....	12	4	18	16	45	31
Georgia.....	13	26	40	30	66	53
Florida.....	2	—	7	15	15	23
Alabama	9	7	23	30	30	46
Mississippi.....	—	6	25	12	47	16
Louisiana.....	7	10	8	19	6	18
Texas.....	13	14	85	189	4	148
Arkansas.....	2	3	9	9	40	27
Kentucky	49	55	30	76	123	49
Tennessee	23	17	14	51	100	24
Missouri.....	21	108	83	79	301	152
Oklahoma.....	—	—	—	3	24	—
Indian Territory	—	—	—	2	—	—

	1900			1908		
	National.	State.	Private.	National.	State.	Private.
Maryland.....	72	26	6	101	54	6
Virginia.....	43	95	—	107	235	2
W. Virginia....	40	83	—	94	171	1
N. Carolina....	31	54	25	69	260	2
S. Carolina.....	17	27	—	30	211	4
Georgia	27	144	9	97	458	11
Florida.....	16	23	—	39	98	7
Alabama	28	20	—	76	187	9
Mississippi.....	12	101	—	30	316	—
Louisiana	21	56	—	38	182	—
Texas.....	223	—	41	535	319	37
Arkansas.....	7	39	3	40	124	—
Kentucky	81	219	13	145	426	—
Tennessee.....	50	56	—	87	325	—
Missouri.....	67	510	90	122	934	59
Oklahoma.....	24	71	—	298	494	—
Indian Territory	39	—	6	—	—	—

Figures for state and private banks for 1880 and 1890 taken from Barnett, op. cit.; other figures are from reports of Comptroller of the Currency.

Under state statutes banks are permitted to be organized under general laws with a small amount of capital. For example, in Virginia, banks can be established with a capitalization of $10,000; in West Virginia, required capitalization is from $25,000 to $500,000, according to the population of the town; in North Carolina from $5,000 to $25,000; in South Carolina and Georgia, $25,000; in Florida from $15,000 to $50,000; in Alabama from $15,000 to $25,000;

in Mississippi from $10,000 to $15,000; in Louisiana and Texas from $10,000 to $100,000; in Kentucky from $15,000 to $100,000; in Missouri from $10,000 to $15,000; and in Oklahoma from $10,000 to $100,000. In Arkansas and Tennessee there are practically no restrictions; in Maryland the capitalization must be larger, ranging from $50,000 to $300,000. About one-half of the states require double liability of stockholders as follows: Maryland, West Virginia, North Carolina, Georgia, Florida, Texas, Kentucky, and Oklahoma. In Texas the liability of a stockholder extends for one year after transfer.

The supervision of state banks is not so strict in this section as in the North. In some of the states there is no special state banking official, the institution being responsible, under the general corporation law, to a commissioner of corporations. In Maryland there is no special state official for examination; in Virginia the banks report to the corporation commission; in West Virginia there is a commissioner of banking; in North Carolina the banks are placed under the corporation commission; in South Carolina, Alabama, and Louisiana there is a bank examiner; in Texas the banks report to a commissioner of insurance and banking; in Missouri and Oklahoma there is a bank commissioner. As a result of this lack of specialized supervision, the reports are fragmentary and incomplete. For many years Louisiana and Kentucky were the only states from which returns could be obtained. In some of the states no compilation is made, banks being required to publish their condition in a local newspaper once or twice a year.

As a rule, the banks are required to keep a reserve, but here the conditions are liberal. The usual rate is a reserve of 15 per cent. against deposits, but this amount includes what is due from other banks, the

cash reserve, as a rule, not exceeding 6 per cent. of the total. In Georgia the reserve is 25 per cent., but this includes balances in other banks and bonds and stocks at their market value. In Florida the reserve is 20 per cent., three-fifths of which may be in other banks, or in United States bonds, or bonds of Florida municipalities. In Louisiana the reserve is 25 per cent., of which, however, only 8 per cent. is in cash. In Texas a reserve of 25 per cent. is demanded, two-fifths of which must be in cash. Moreover, no bank can deposit more than a fifth of its combined deposits, capital, and surplus in any other bank. In Kentucky the reserve runs from 15 to 25 per cent., according to the population of the town in which the bank is located. In Oklahoma the reserve ranges from 20 to 25 per cent., only one-third of which is in cash; any bank, however, which is a depository for the reserve of another bank must keep the higher amount.

The legal regulation as to the amount of loan to any one person is generally specified in the banking law of the several states. In West Virginia loans to one person can run as high as 20 per cent., excluding commercial discounts. In Alabama, the maximum amount is 10 per cent. of the capital, surplus, and undivided profits; this amount, however, can be exceeded if good collateral is submitted and the loan is specially authorized by the directors. Provisions for Georgia are practically the same. In Texas not more than 50 per cent. can be loaned on real estate, and then the loan must be limited to one-half the appraised value of the property; not more than 25 per cent. of the capital and surplus can be loaned to any one person, but this does not include commercial discounts. In Missouri 25 per cent. can be loaned to one person. In Oklahoma loans may be made on first mortgages for not more than one year, and not

more than 20 per cent. to one person, exclusive of commercial paper.

Some of the states provide that no unincorporated institution can use the term "bank" in its business operations.

In Arkansas there is practically no banking legislation, and the banks organize under the general law applicable to manufacturing and business corporations.

The most interesting development in banking in this section is the guarantee of bank deposits introduced by Oklahoma in 1908, followed by Texas in 1909. Under the Oklahoma law, a depositor's guarantee fund is established, placed under the control of the state banking board composed of the governor, lieutenant-governor, president of the board of agriculture, the state treasurer, and the state auditor. An assessment is levied against the capital stock of each bank for the purpose of creating a guarantee fund equal to 5 per cent. of the average deposits. If this fund is reduced below 5 per cent. because of payments to depositors of failed banks, an emergency assessment may be levied to restore the impairment, but the total of these emergency deposits can never exceed in any one year 2 per cent. of the deposits. If the amount thus realized is insufficient to pay claims, the depositors receive certificates of indebtedness bearing 6 per cent. interest, which are to be liquidated from future emergency assessments. Three-fourths of the guarantee fund is invested in state funds. A bank may display in its place of business that the deposits are guaranteed, but cannot publicly advertise this fact.

In Texas two methods have been provided: a guarantee fund of 2 per cent. may be created, or, a bank may file a bond, or other guarantee of indemnity with a state official in order to secure the depositors; this

guarantee must be approved by a local judge. Texas which has more recently revised her banking laws enforces other unusual provisions; there must be a certain ratio between capital, including surplus, and deposits; if deposits increase disproportionately to capital, the latter must be increased. Provision is made also against hypothecation of bank stock and manipulation through a chain of banks.

The development of banking facilities in the South during the past ten years has greatly lessened the dependence of this section upon New York and other eastern cities for funds with which to market crops. In the four cotton states of Texas, Oklahoma, Georgia, and Kansas, the number of banks in ten years has increased 271 per cent., and the loans 312 per cent. In the South as a whole, the total assets of the national banks have nearly trebled during this period.

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TRUST AND BONDING COMPANIES.

THE results of the general movement leading to the organization and development of trust companies have been easily apparent in the South since 1895. This is especially so in some of the larger cities, such as St. Louis and Baltimore. In St.

Louis the following figures illustrate the magnitude of the operations of trust companies in 1909:

No.	Capital.	Surplus.	Deposits.
18.....	$16,840,000	$20,386,100	$76,439,000

Baltimore, which has developed to an unusual extent other classes of financial institutions, and which has a more restricted classification as to trust companies, shows the following figures:

No.	Capital.	Surplus.	Deposits.
8.....	$8,850,000	$10,556,000	$27,303,000

A recent compilation indicated that 433 out of 1,427 trust companies located in the United States were in the Southern states.

The sphere of operations of many of the trust companies has extended over a large part of the United States, and in many instances has gone far beyond its borders. These companies, whether as developing, registrar, transfer, or fiscal agencies for public or private corporations, or as fiduciaries, serving as trustees, executors, guardians, etc., in the probate and equity courts, or as banking institutions, or acting in other capacities, have been potent factors in the development of the South. In some respects they have competed with banks (national, state, and savings), but to a large degree they supplement the activities of banking institutions. Trust companies, through an elasticity of functions, wider charters, and a public supervision generally less rigid, have been given an advantage over banks, of which they have been quick to avail themselves.

The rise and rapid progress, largely under Southern auspices, of another class of corporations deserves special attention. The wide and somewhat conglomerate charter of the average trust company frequently carries provisions for the issuance of

surety bonds. The number of instances in which this power is exercised is comparatively small, since the long established custom of individuals acting as sureties on bonds has generally prevailed, except where the bonds have been executed by companies organized for the special purpose of becoming surety. The organization and development of the business of corporate suretyship in the United States practically dates from 1884, and promises to be gigantic in its results, in which the rôle of the South is a very important one.

It was frequently said, not long ago, that Baltimore was the home of corporate surety business, and that three of the five big companies were located there. These statements, though somewhat loose, have much of truth in them. Twenty years ago corporate suretyship in the United States was in its infancy. In 1890 a company organized in Baltimore, under a charter granted by the state of Maryland, began to make a speciality of acting as surety on bonds. During the course of the next six years two similar companies were also organized by Maryland capital and located in Baltimore. These companies immediately started out to construct a widespread and comprehensive field for corporate suretyship, quickly extending their activities throughout the United States, and in some instances to a limited extent to foreign countries.

Not only in number, but in size of capital, amount of business done, and general activities, these Baltimore companies have always ranked as among the largest in the country, and for a number of years did a business which aggregated more than the entire bonding business done by all the other bonding companies in the United States. For the year 1908 the net premium receipts, from premiums on surety bonds alone, of these companies, in addition to a

fourth, which was later organized in Baltimore, amounted to $5,346,746.48, which was over one-third of the total amount done that year in the United States by surety companies. The figures of these four companies for 1909 are approximately $6,617,-781.36. Influenced very largely by the example set by the Baltimore companies, a number of bonding companies have been organized and put in operation in the different parts of the country; one of these is located in Oklahoma and another in Texas. The aggregate amount of net premium receipts for 1908, from the Southern states, of the twenty companies which do practically all of the bonding business in the United States, was as follows:

Alabama	$78,367
Arkansas	29,265
Delaware	20,617
Florida	27,238
Georgia	136,060
Kentucky	130,662
Louisiana	114,900
Maryland	359,895
Mississippi	48,925
Missouri	379,542
North Carolina	80,728
Oklahoma	155,851
South Carolina	44,554
Tennessee	129,182
Texas	152,401
Virginia	125,193
West Virginia	40,131
Total	$2,053,511

The gradual substitution of corporate for individual suretyship is bringing about a much higher grade in the class of fiduciaries who settle estates, since surety companies, directed by business considerations and not by motives of friendship, discriminate much more than individuals do in the selection of fiduciaries to be bonded. Looseness and laxness of administration, and loss are thus often prevented.

The bonding of employees in financial and commercial institutions by surety companies necessitates rigid supervision and frequent examinations by the employer of the accounts of the officials and employees. Losses resulting from peculations of public officials and from the failure of banks holding public funds have been lessened very materially by reason of the care and oversight exercised by surety companies, and by the fact that these companies are able to make good when shortages occur.

The custom, which is rapidly growing and promises soon to be prevalent, of requiring a contractor to give bond, has proved to be of inestimable benefit in eliminating from competition incompetent contractors, and of insuring more businesslike regulations in regard to the performance of building contracts.

During recent years surety companies have placed agents and sub-agents throughout the country, with representatives in every city and small town at least.

The lending, general handling and custody of money have been facilitated throughout the South by trust companies doing a banking and safe deposit business. In a like manner the vast fields in regard to the operation of trust estates, the holding of public and private office, the execution of contracts of every description, have, and are now receiving, through the influence of bonding companies which have developed in the past twenty years, a strong infusion of sound business principles. The Southern states, as well as other parts of the United States, have felt the full measure of benefit derived from this progress, and it is, and should be, a matter of pride for Southern people to know that Southern capital and Southern brains have exerted a commanding influence in the foundation and establish-

ment of a business which is one of the most important and greatest of financial developments of recent times.

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GENERAL ECONOMIC AND POLITICAL CONDITIONS.

1.—Relation of Government to Agriculture and Industry.

STATE AND LOCAL GOVERNMENTAL ACTIVITY IN SOUTHERN INDUSTRY AND COMMERCE.*

THE state governments of the South have taken an active part in the construction of railroads, both before and since 1865. Many enterprises of this kind were begun in the former period, but concluded in the latter. Georgia built the Western and Atlantic Railroad before the war, and continued to operate it until the end of 1870. It has since been leased to a private corporation, and the state now receives from this source about $420,000 a year. Likewise North Carolina derives a noteworthy annual revenue from the leasing of her state-controlled North Carolina, and Atlantic and North Carolina, railroads. In 1907 she received about $225,000 on account of the former, and $35,000 on account of the latter. These instances—especially that of Georgia—represented *ante-bellum* experiments which had a termination comparatively favorable to the states concerned. Many other cases of state aid to railroad construction came to a far less favorable conclusion. Especially striking is the experience of Missouri, which finally disposed of its interest in the state-aided rail-

* For information on State banking, see articles on "State Finances," and on "Banking in the South."

roads in 1868. That state had on Jan. 1, 1868, a total railway indebtedness, in bonds and interest due, of $31,735,840. To offset this debt she received from the sale of her interest in the railroads the sum of $6,131,496, leaving as a burden upon the state the balance of $25,604,344. In the final outcome, this large debt aided in the construction of 1,540 miles of railroads, no property interest in which remained in possession of the state.

It was not until after the war that state aid to railroad projects assumed much importance in Alabama, Texas, and Arkansas. In 1867, Alabama entered upon several years of great activity in railroad promotion. The results proved disastrous to the state which, by Oct. 1, 1875, was burdened with a railroad debt in endorsed and guaranteed bonds amounting to $15,797,000. Texas before the war provided land grants for the aid of railroads, but in so undeveloped a state these were not effective. Between 1870 and 1875 state bonds and other financial aid were granted to various railroad projects, and by Jan. 1, 1875, the state's railroad debt was $4,822,000. In 1875 the lending of the credit of the state was discontinued, and in 1882 the land grant acts were repealed. Arkansas also entered upon a few years of state aid to railroads, levees, and other internal improvements after 1870. A debt of $5,350,000 was incurred for railroads, $3,005,846 for levees, and $3,350,000 for other internal improvements. When the legislature of 1875-1876 repudiated this debt, but one railroad, the Memphis and Little Rock, 130 miles in length, was completed.

North Carolina and Tennessee, which had been among the states active in aiding railroad enterprises before the war, suffered a lavish and wasteful resumption of the same policy during the Reconstruction period. North Carolina's credit was ru-

ined by the reckless granting of bonds to private companies. The bonds were sold at a heavy discount and the proceeds largely squandered. Interest on the state debt went unpaid, and by 1878 it had, with the arrears of interest, reached the almost incredible sum of $44,730,697. Of course, this debt was only in part due to the grants to railroads. In 1879 it was scaled down to manageable proportions. In Tennessee, between April, 1866, and December, 1868, there was a period of notorious legislative extravagance and corruption. In that period $14,393,000 was granted in aid of proposed railroads. The whole railroad debt of Tennessee, incurred before and after the war, is said to have amounted to $29,234,000. Louisiana, Georgia, Florida, and South Carolina all granted financial aid to railroads to some extent after 1865. In 1865-66 Virginia found herself burdened with a public debt of $45,000,000, largely incurred for the purpose of assisting turnpikes, canals, and railways. Immediately thereafter she took measures to terminate her connection with such enterprises, and the use of the credit of the state in aid of private corporations or companies was forbidden in her constitution after 1867.*

In general, the history of state aid to railroads in the South after the war was exceptionally discreditable to all concerned. Many of the projects were fostered by adventurers and were fraudulent in character. Extravagant grants in the forms of bonds were secured through bribery from the Reconstruction legislatures. Such bonds were often turned over to the railroad companies before the work was hardly begun. The bonds were sold, while the railroads were left incomplete or not built at all. As a rule, the states in whose names these bonds were issued

* See Chapter VI on "Internal Improvement Experiments in Southern States," in Million: *State Aid to Railways in Missouri.*

later scaled them down or repudiated them entirely. The disastrous experience also led many of the Southern states to place in their constitutions prohibitions of further grants of state aid to railroads and similar enterprises.

Besides the grants voted by the state legislatures of the South to railroads, they have also been largely aided by counties and municipalities along their lines. Throughout the country it is estimated that such local aid has amounted to several hundreds of millions of dollars. Sometimes local aid has taken the form of subscriptions to stock, but more often bonds have been voted as a bonus to the railroads. Often the managers of the companies have surveyed alternative routes and shrewdly stimulated the competition of rival towns desiring to be on the line as finally constructed. The desire to secure the advantages of competitive rates has sometimes induced municipalities to participate in the construction of new roads into a territory already occupied. In many cases communities have been burdened with debts far out of proportion to the benefits received.

Another form of state industry has been the direct employment of convicts in penitentiaries, or in road making and similar public work. In such a state as North Carolina the prison earnings have been an important source of revenue, and work of great value has been done by the county convict gangs in the construction of public roads. Other states, including especially Georgia and Alabama, have derived hundreds of thousands of dollars annually from the leasing of convicts to corporations engaged in mining, manufacturing, lumber production, and similar industries. There can be no doubt that this exploitation of the labor of convicts for the financial profit of states has been at the expense of needed reformatory effort. There has also been a certain amount

of revenue-producing industry carried on in state institutions for the dependent and defective classes.

Turning to the field of local government, we find that the cities and towns of the South have undertaken to an important extent the ownership and conduct of certain public service enterprises. The provision of a water supply has been frequently undertaken by Southern municipalities. Cities of the South of over 50,000 population reported as having public water works systems in 1907 included Baltimore, Washington, Louisville, Kansas City, Memphis, Atlanta, Richmond, Nashville, Savannah, Norfolk, Houston, and Covington. New Orleans has been supplied by a private water company, but it is reported that its system will soon become municipal. Charleston and San Antonio are Southern cities of over 50,000 inhabitants supplied by private companies. In general, a fair degree of success seems to have been obtained in the municipal ownership of water works, and the tendency seems to be in that direction.

Of the twenty-five gas works operated by municipalities in the United States in 1906, eleven were in the South. The Richmond, Virginia, plant was the most important municipal works in the country. Prior to 1897, it was second to the Philadelphia municipal plant which is now being operated by a private company under a long-term lease. Other Virginia towns with municipal gas works are Alexandria, Charlottesville, Danville, and Fredericksburg. Wheeling, West Virginia, operates an important gas plant, and other municipal gas supply systems were in operation in 1906 in Cartersville and Dalton, Georgia; Talladega, Alabama; Henderson, Kentucky; and Rich Hill, Missouri.

Advocates of municipal ownership have frequently cited the Richmond gas works as a notable example

of the advantages to be secured under their policy. This plant was started in 1852. The rate charged has been kept comparatively low. It is claimed that the plant has been paid for out of the earnings, and that over $1,500,000 has been turned into the city treasury in addition. The question of the retention of the municipal plant largely entered into the city election in the spring of 1906. It appeared that too large a part of the earnings of the plant had gone into the city treasury, and too little had been spent on maintenance and improvement. Public sentiment proved favorable to the retention and improvement of the plant. The municipal gas plant at Wheeling, West Virginia, is second in importance in the South. It has sold gas at the remarkably low rate of 75 cents a 1,000 feet since 1888. However, the efficiency of the management has been impaired by the prevalence of the political spoils system, and the plant has not been maintained in the best condition.

Municipal electric lighting enterprises have been much more prevalent in the United States than those for gas supply. Some of the municipal electric plants supply light exclusively for the streets and for municipal buildings; others carry on an ordinary commercial business. In 1907 there were reported to be 1,055 municipal electric light plants in the whole country. The Southern states had somewhat less than a third of these distributed as follows: Maryland, 6; Virginia, 13; West Virginia, 6; North Carolina, 25; South Carolina, 14; Georgia, 42; Florida, 11; Alabama, 19; Mississippi, 28; Louisiana, 14; Texas, 9; Arkansas, 10; Missouri, 51; Oklahoma, 5; Kentucky, 13; Tennessee, 27.

The municipal operation of electric light plants is infrequent in the very large cities of the country, but has been extending greatly among the smaller municipalities during the last decade. Notwithstanding

some failures on account of bad municipal conditions, a reasonable degree of success seems to have been generally attained. The most noteworthy municipal electric lighting plant in the South is that at Jacksonville, Florida. This does a commercial business. It was installed in May, 1895, and in 1906 the city attorney at Jacksonville stated (in a paper before the National Municipal League) that this plant had been entirely paid for from its earnings and that it had turned into the city treasury about $65,000 in cash.

A number of other enterprises are carried on by Southern municipalities. It is very generally the fact that cities own and manage public markets and scales. Some cities located on navigable waters, such as Baltimore, Louisville, and Savannah, undertake to manage docks and wharves. In other cases auditoriums and theatres are located in municipal buildings and leased or rented. Cemeteries are also frequently owned by municipalities.

The South possesses the unique distinction of having, at Monroe, Louisiana, the only street railway system operated by a municipality in the United States. This was opened for business on Aug. 1, 1906. The enterprise is reported to be meeting with great success, and the system has been extended eight miles to a suburban park, in which the city provides opportunity for free bathing and boating. The same city is also operating its own water and lighting plants.

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CONFEDERATE PENSIONS, HOMES, AND RELIEF MEASURES IN THE SOUTH.

THOUGH the burden of paying billions of dollars for the maintenance of an extravagant Federal pension system has been shared by the South with the sections of the country especially benefited, the individual Southern states have not neglected to undertake also the additional task of providing for their own invalid and needy Confederate soldiers. This work was begun as soon as the South had sufficiently recovered from the impoverished condition caused by the war and the period of the Reconstruction. As financial resources have permitted, one by one every state that was a member of the Confederacy has established a Confederate pension system. It is worthy of note that, while the Federal pension system has drawn its billions of support through the concealed burden of indirect taxation, Southern states have not hesitated to grant Confederate pensions, liberal for their means, when the pension tax must appear on the face of every man's tax bill. Willingness to vote pensions and to increase them constantly under such circumstances, even on pain of doing without greatly needed improvements in roads, public schools, and other public institutions, gives an indication of the strong and popular appeal made by the cause of the old Confederate soldier.

Though space limitations prevent a review of Con-

federate pension provisions by states, special attention may be directed to Georgia, which has developed the most liberal and comprehensive pension system. From 1879 to 1909, inclusive, the state has expended for this purpose over thirteen millions of dollars. Her annual outlay for Confederate pensions is now not far from a million dollars, a great amount for a single state of the South.

Georgia began her provision for disabled Confederate soldiers by appropriations for artificial limbs in 1879 and again in 1887. Her regular payment of annual invalid pensions dates from 1889. In 1893 there were added to the pension roll the widows of Confederate soldiers whose husbands died either in service or after the war from disability or disease contracted in service. Indigent Confederate veterans were admitted to the pension list in 1896, and, in 1902, pensions were granted to indigent widows of Confederate soldiers, even though the soldier's death was not due to his military service. A new constitutional amendment has recently opened the way to further liberality in pension legislation.

At present the amount of the pension paid to an indigent Confederate soldier is $60 a year. The same allowance is also made both to indigent widows and to widows whose husbands died as the result of service. Georgia has adopted to some extent the practice of the Federal government in grading invalid pension rates according to the nature of the disability. For instance, a pension of $150 a year is granted for total loss of sight; $100 a year for loss of a hand; $30 a year for total loss of hearing; and $5 a year for loss of a thumb. These amounts are very much smaller than the Federal pension rates for the same disabilities.

In 1896 Georgia placed her pension system under the direction of a commissioner of pensions appoint-

ed by the governor. But an act of 1908 has provided that hereafter the commissioner shall be elected by the voters of the whole state. In other Southern states the Confederate pension system is very commonly administered by the state auditor.

The Confederate pensions in Georgia are now paid annually, in one sum, between January 1 and May 1. In 1909, a total of $938,559.85 was paid to 15,779 pensioners. More than half of these were indigent soldiers, the remainder being disabled soldiers and widows. The total amount paid out to Georgia pensioners from the beginning of the system in 1879 to 1909, inclusive, is $13,074,346.75.

From the standpoint of monetary expenditure, the pension system of Georgia is the most important representative of the systems that have been established in all the states that were members of the Confederacy. In 1906 these states had nearly 100,000 pensioners, distributed as follows: Virginia, 13,000; North Carolina, 14,400; South Carolina, 7,750; Georgia, 15,297; Florida, 3,300; Alabama, 15,147; Mississippi, 7,863; Louisiana, 1,925; Texas, 8,103; Arkansas, 7,340; Tennessee, 4,924. In the payment of these pensioners, the eleven states expended in 1906 a total of about $3,900,000. The three states with largest expenditures in that year were Georgia, $907,747; Alabama, $462,732; Texas, $425,000. At present the total annual expenditure for Confederate pensions is much greater than in 1906, the tendency in recent years having been towards a constant increase in the size of the appropriations made by the various states.

In addition to the provision of pensions, practically all of the states of the Confederacy have established and maintain homes for Confederate veterans who are left without means in their declining days. Thus many old soldiers are kept from the almshouse

and relieved from the stigma of depending upon charity. Such border states as Kentucky, Missouri, and Maryland also have Confederate soldiers' homes. The Maryland home is a private institution which receives an annual appropriation from the state. These homes generally provide accommodations for from 100 to 300 or 400 inmates, at an annual expense of from $10,000 or $15,000 up to $90,000 or more. Texas maintains one of the largest homes, and, in 1906, expended $86,000 for the support of 320 to 340 inmates.

Valuable work in connection with the Confederate soldiers' homes has in many cases been done by the United Daughters of the Confederacy. An illustration of this is found in the circumstances of the establishment by the state of Mississippi, in 1904, of the Jefferson Davis Memorial Home at Beauvoir, the old home of the Confederate president. The Mississippi Division of the Daughters of the Confederacy raised funds for the erection and equipment of four of the buildings used by the home. The Daughters have also interested themselves in the comfort and proper care of the veterans in the homes of the various other states.

The United Confederate Veterans have, of course, shown a deep interest in relief work among the needy or disabled of their number. In this they have been aided by the Daughters of the Confederacy, by the United Sons of Confederate Veterans, and by other similar organizations. The public sentiment fostered by such bodies has been of importance in securing generous appropriations for pensions and for soldiers' homes. Confederate veterans have also been frequently exempted from some of the occupation and license taxes required of other citizens.

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ACTIVITIES OF THE FEDERAL GOVERNMENT IN SOUTHERN ECONOMIC DEVELOPMENT.

WITH the close of the war, in 1865, the Federal government rapidly restored the postal service to the Southern states. In the year following Lee's surrender mail routes were resumed in the South by tens of thousands of miles, and thousands of postoffices were re-opened. On June 30, 1866, there were 23,828 postoffices in the whole country, of which 8,839 were in the states which had lately been in arms against the Federal government.

During the war the postal department had inaugurated several progressive measures, the benefits of which were in due time extended to the South. In 1863 the postage on letters was reduced to a uniform rate of three cents per half ounce to all parts of the United States. In the same year the "free delivery system" was started in large cities. In 1866 free delivery was in existence at forty-six city offices, including Washington, Baltimore, Memphis, and Nashville. It was gradually established in the larger cities of the South, and in time extended to smaller cities all over the country. The postal money order system was established on Nov. 1, 1864, and proved very successful. It supplemented a registry

system introduced in 1855, which for some years experienced little growth. The railway mail service, which was to become of great importance in expediting the handling of the mails, was inaugurated in 1864. In 1883 the rate of letter postage was again reduced to two cents per ounce.

Since the South is predominantly an agricultural section, it has been especially benefited by the most recent extension of the postal service, the institution of rural free delivery. Preliminary appropriations by Congress made possible the institution of trial rural delivery routes in 1896. Success attended the experiment, and the rural delivery system made a rapid growth, being permanently organized on July 1, 1902. The annual appropriation for the rural service now exceeds that provided for city free delivery, and the number of carriers employed is greater. In several of the Southern states there are thousands of rural routes providing the people with a daily mail. Though it is not possible to determine even approximately how much of the postal revenue is directly and indirectly due to the existence of the rural free delivery, the revenues which can be directly attributed to the system fall far short of its cost. The maintenance of the system, in all probability, involves a large balance of expenditure from the national treasury for the social and economic benefit of the communities where the service exists.

This outlay for free delivery has been of marked advantage to the rural South. It has brought the remote country home into close relations with the whole system of social and industrial organization. The farmer and his family are thus provided with facilities for regular social and business correspondence. To an ever widening circle of readers the daily paper, with its news and market reports, be-

comes a welcome and useful visitor. The carrier saves the country dweller's time and facilitates trade by taking orders to town and bringing back small parcels of merchandise. He also brings to one's door facilities for the registry of letters and parcels and for the transfer of money by means of money orders. Indirectly, the government's requirements for the establishment of rural delivery routes have given a stimulus to the construction of good roads and bridges.

Another activity of the Federal government, which has not been so advantageous to the South, is the development to unexampled magnitude of the national military pension system. There could hardly be just complaint on the part of the South against proper provision by the national government for the relief of those who were actually disabled in the struggle to maintain its existence. But the South has good reason to object to the unfairness of the costly extension of the pension system under such laws as the acts of June 27, 1890, and of Feb. 6, 1907. Under these laws the granting of pensions based upon a short term of service, without proof that any disability was incurred in performing military duties and without regard to the pecuniary circumstances of the pensioner, has resulted in an inequitable and extravagant distribution of government revenues among a special class of citizens. When such a condition as this exists, there is abundant reason for protest on the part of good citizens in all sections of the country, and especially in those states which are at a disadvantage in the distribution of the common funds.

According to the report of the commissioner of pensions for the year ending June 30, 1909, Civil War pensions had up to that date cost the country the vast amount of $3,686,000,000. While the Fed-

eral revenues have been raised by uniform taxation throughout the country, these billions of dollars have been unequally distributed to the different sections of the country. The South might expect to bear a part of the cost of supporting a well-guarded invalid pension system for the Union soldiers as one of the inevitable consequences of the war. But the enormous expenditures for indiscriminate service-pensions have worked a serious injustice to this section.

It is true that there has been some considerable distribution of pension money in the Southern states on account of the Union soldiers who were enlisted from the border states, on account of Union veterans removed to the South, and on account of the war with Spain and other military service. But the relative amount of the pension expenditures in the South and in some Northern states is indicated by figures taken from the report of the commissioner of pensions for the fiscal year 1909. In that year the total amount expended by the Federal government for all classes of pensions in the eleven states which formed the Southern Confederacy was about $12,300,000. As compared with this, the Northern states receiving the largest amounts in pensions were: Ohio, $16,376,000; Pennsylvania, $15,354,000; New York, $13,942,000; Illinois, $11,311,000; and Indiana, $10,640,000. The total expenditure for the whole country for the year was $161,973,000. Of this expenditure, $58,383,000 was incurred under the single Civil War service-pension act of Feb. 6, 1907. Such a showing indicates the great financial disadvantage which is suffered by the South by reason of the pension system. Conditions met with earlier in the history of the pension system are repeated on a larger scale.

Many other activities of the Federal government in Southern economic development would be dis-

cussed here, if they had not received special treatment elsewhere in this volume. Such are the economic results of the Reconstruction; the conservation of natural resources; Federal lands and land laws in the South; Federal aid to internal improvements; forest conservation in the South; treaties and conventions affecting Southern commercial development; the effects of currency legislation upon the South; the national bank system in the South; the influence of Federal organizations and departments upon the promotion of Southern agriculture and allied industries; the economic effects of the tariff policy; land reclamation; influence of Federal aid to fairs and expositions; influence of the Panama Canal on Southern agriculture and commerce; and Federal activity in the development of water transportation in the South.

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STATE AND FEDERAL GOVERNMENTAL REGULATION IN SOUTHERN INDUSTRY AND COMMERCE.

IN governmental regulation of Southern industry since 1865, the regulation of railroads is perhaps first in importance. For some time after the war the problem in the South was that of state aid to railroad building rather than that of supervision or control over the railroads. Large amounts of

bonds were improvidently issued during the Reconstruction times to aid various railroad projects. In the seventies, however, there grew up in some sections of the country a public opinion in favor of state railroad regulation, due to the existence of unfair discriminations as to rates and fares. The Western states passed the so-called "granger laws," fixing rates and establishing commissions to regulate the roads. The South joined in the movement. In 1879 Georgia instituted a commission with power to prescribe rates. The movement for state regulation progressed, and eventually the Southern states generally established either boards of railroad commissioners or corporation commissions.*

Some of the earlier railroad commissions were given simply advisory powers, but the trend in the South, and of late years in the country at large, has been toward the establishment of commissions with mandatory powers. Some states, such as North Carolina, have established corporation commissions with power to regulate not only railroads, but also banks and other classes of corporations, especially those furnishing public utilities. There has been considerable litigation regarding the powers of these railroad and corporation commissions. Virginia sought to guard against such litigation in the terms of the provisions for a commission of the rate-making type which she made a part of her constitution of 1902. In recent years there has been a great extension of the powers of railroad commissions. Prior to 1902, Virginia, Kentucky, Louisiana, and Alabama had commissions with advisory powers; West Virginia and Maryland had no commissions; and the other Southern states had commissions with mandatory powers. In 1908, West Virginia and

*For additional information, see the article on "Economic Statistics in the South."

Maryland remained without railroad commissions, but Virginia, Kentucky, Louisiana, and Alabama had given mandatory powers over the railroads to their commissions. The Texas commission has been notable for the vigorous exercise of its mandatory powers.*

In the constitution of 1907 adopted by the new State of Oklahoma there were included especially elaborate provisions for the regulation of railroads and other corporations. A corporation commission was created for the purpose of supervising and controlling all " transportation and transmission companies." It was given rate-fixing and other mandatory powers. The legislature, however, was authorized to alter the powers of this commission at any time after January, 1909. A provision was also included in the Oklahoma constitution establishing two cents per mile as the rate of passenger fare for all railroads in the state, until otherwise provided by law, or until the corporation commission should have granted exemption to a railroad on the ground that two cents per mile did not enable it to earn just compensation for its services.

The two-cent fare provision in the Oklahoma constitution was entirely in harmony with the widespread activity in the year 1907 to compel reductions in railway passenger rates. Two-cent fare bills were under consideration by numerous state legislatures. In dealing with such measures, it was frequently the case that inadequate attention was given to differences in traffic conditions affecting different localities and different railroads.

Among the Southern states passenger fare reduction was taken up in 1907 by the legislature, or the railroad commission, or both, in Alabama, Arkansas,

*See the article by J. L. Slayden on "Railway Regulation in Texas," in the *Annals of the American Academy of Political and Social Science*, July, 1908.

Georgia, Mississippi, Maryland (1906), Missouri, North Carolina, South Carolina, Texas, Virginia, and West Virginia. The results varied in the different states. In South Carolina a two and one-half cent fare bill was defeated in the senate. North Carolina at first passed a two and one-quarter cent fare bill, exempting railroads sixty miles or under in length. The railroads attacked this law in the Federal courts, and, afterwards, negotiations between the governor of North Carolina and the railroads resulted in a special session of the North Carolina legislature at which a two and one-half cent fare bill was passed. Later the United States Supreme Court declared North Carolina's original two and one-quarter cent fare law unconstitutional, because it was regarded as confiscatory, and because it attempted by severe penalties to prevent carriers testing its validity in the Federal courts. Besides numerous laws classifying freight and fixing freight rates, Alabama passed a two and one-half cent passenger fare law, but allowed the state railroad commission to determine the fare on lines under one hundred miles in length. These Alabama laws of 1907 were characterized before passage as "injunction proof," the legislature having provided extremely heavy penalties for any delay in obeying them. However, the railroads were not intimidated by the enormous fines they might possibly incur in case the laws were eventually sustained, and they secured from the Federal Circuit Court injunctions forbidding their enforcement pending the litigation as to their constitutionality. In the North Carolina case the Supreme Court recorded its disapproval of such methods of interfering with recourse to the Federal courts. Arkansas, West Virginia, and Missouri passed two-cent fare bills, with some exceptions in favor of the smaller railroads. In Mississippi the railroad commission ordered a

two-cent fare for interchangeable mileage books, and the legislature afterwards passed a two-cent fare bill. The Georgia railroad commission ordered a two-cent fare on some of the larger roads, a two and one-quarter cent fare on other roads, and a two and one-half cent fare on certain smaller railroads. In Virginia the corporation commission classified the railroads and fixed passenger rates ranging from two to three and one-half cents a mile.

The panic of 1907 and the consequent business depression put an end to this remarkably widespread agitation for passenger fare reduction. As in North Carolina and Alabama, so in Virginia, Missouri, Mississippi, Oklahoma and other of the above states the railroads have resisted, or are resisting, the rate legislation through appeals to the Federal courts. In the southeastern part of the country the outcome of the whole fare reduction movement has been the very general establishment by the leading railroad systems of a two and one-half cent rate, with the sale of interchangeable 1,000-mile books at the rate of two cents a mile. This is a considerable concession to the public in the amount of the rate, and the interchangeable mileage books, good for both intrastate and interstate use, are a decided convenience.

It should also be noted that there was legislation reducing freight rates in some of the Southern states contemporaneous with the passenger fare legislation. Laws of this character were enacted in Maryland in 1906, and in Alabama, Missouri, and North Carolina in 1907. Usually, however, states which have undertaken to regulate and establish freight rates have entrusted the task to railroad or corporation commissions.*

*For a comprehensive and detailed discussion of recent state railroad regulation throughout the country, see an article by Grover G. Huebner on "Five Years of Railroad Regulation by the States," in the *Annals of the American Academy of Political and Social Science* for July, 1908.

Federal railroad regulation was inaugurated at a considerably later date than the state regulation. In their endeavor to regulate the railroads, the states found that the problems met with were closely connected with interstate commerce and that there was need of the coöperation of the Federal government. Though this need had for many years been recognized, it was emphasized by a decision of the Supreme Court in 1886 which limited the authority of the state strictly to *intra*state traffic. In February, 1887, the national Interstate Commerce Law was passed and the Interstate Commerce Commission created.

Many of the most interesting decisions of the Interstate Commerce Commission have been in cases which have come to it from the South. Among these cases, to be found in the reports of the Commission, are The Savannah Naval Stores Case, The Chattanooga Case, The Savannah Fertilizer Case, The Troy, Alabama, Case, The Dawson, Georgia, Case, and The Danville, Virginia, Case. As is seen in the Dawson, Georgia, Case, the Interstate Commerce Commission has not approved of the basing point system of rate making which prevails in the South. For the purpose of making rates under this system, certain points are selected to which an arbitrary rate is made, and the rates to surrounding points are determined by adding to these arbitrary base rates the local rates. The result is the building up of favored localities to the prejudice of localities not so favored. Under the interpretation put upon the Interstate Commerce Law by the Supreme Court, the Commission has not been able to make great headway against this system.

With powers rather narrowly limited by the courts, the Interstate Commerce Commission nevertheless accomplished much good from 1887 to 1906.

Publicity of rates was secured, excellent railway statistics were published, the number of freight classifications was reduced, and by both formal and informal action a better adjustment of railway charges in many localities was secured. The Hepburn act of 1906 greatly strengthened the Commission. It was empowered to inspect and audit the accounts of interstate railways, to prescribe a uniform system of accounting, to be the sole and final judge of facts in cases before it, to decide in disputed cases what is a reasonable and lawful rate, and to prevent undue delay by public carriers in obedience to its decisions. In the matter of Federal regulation of the railroads, mention should also be made of the Elkins act of 1903. This was intended to make it more dangerous and difficult for favored shippers to secure discriminating rates. It was in substance incorporated in the Hepburn act of 1906.

Both states and nation have also attempted to regulate the corporate conduct of industry by forbidding the existence of trusts and combinations in restraint of trade. The period from 1889 to 1893 was especially notable for the enactment of state anti-trust legislation. In 1890 the Federal Sherman anti-trust law was passed. Some of the Southern states, especially Texas and Missouri, have placed drastic anti-trust laws on their statute books. Texas has been successful in litigation to expel the Standard Oil Company and controlled companies from the state. The Waters-Pierce Oil Company, which posed as an independent concern, but was really controlled by the Standard Oil Company, was convicted of violation of the Texas laws, and its permit to do business in the state was cancelled. The heavy fine of $1,623,500 was also imposed, and it was collected after the United States Supreme Court had affirmed the action of the lower courts. In Missouri, Governor

Hadley, while attorney-general of the state, succeeded in establishing the fact that certain ostensibly independent oil companies operating in Missouri were in reality controlled by the Standard Oil Company, and hence were in violation of the Missouri anti-trust law. The result was the conviction of the Waters-Pierce Oil Company of Missouri, the Republic Oil Company of New York, and the Standard Oil Company of Indiana. Each of these companies was fined fifty thousand dollars, the New York and Indiana companies were ordered to discontinue the transaction of business in the state of Missouri, and the Waters-Pierce Company was ordered to dissolve under conditions which would allow of its re-organization as an independent company. The Standard Oil Company of Indiana has since (1909) proposed to the state of Missouri an arrangement for the conduct of its business in that state under two trustees, one to act as a representative of the state, and the other to represent the company. Notwithstanding the outcome of the above cases, it seems to be the fact that in most of the Southern states the anti-trust legislation has had little real effect. The courts have been more conservative than the lawmakers, and it has been difficult to prove legally the existence of monopoly.

In the enforcement of the Federal Sherman anti-trust law the government has secured decisions in the Circuit Courts against the American Tobacco Company and the Standard Oil Company, both of which transact business extensively in the Southern states. These cases have been appealed to the Supreme Court of the United States. In case the decisions against the companies shall be sustained, what the effect will be is problematical. The Bureau of Corporations of the Department of Commerce and Labor has also done much work in carrying on in-

vestigations of some of the trusts. It has given publicity to some important reports, including those on the Standard Oil Company and the American Tobacco Company.

Another object of governmental regulation of industry has been the prevention of the sale of unhealthful or adulterated food. The Federal government has for many years inspected meat products slaughtered at important points for sale in interstate or foreign commerce. This inspection was greatly strengthened in 1906. In so far as the South is a consumer of Western meats, this action of the Federal government has been a protection to it. The Federal Food and Drugs Act of June 30, 1906, extended the regulating arm of the national government to commerce in a host of products susceptible of adulteration, or of improper methods of preservation, or of being sold in an impure condition.

Prior to 1906 many of the Southern states had pure food laws, but they were not in general well enforced. The great interest in the question of pure food caused by the agitation of 1905 and 1906 resulted in the passage of the Federal law of 1906 and also found expression in a remarkable activity in state legislation. In intrastate commerce in foods, the states sought to establish standards similar to those of the Federal law. In the year 1907 the following Southern states enacted either original or new legislation regarding the manufacture and sale of food products: Alabama, Arkansas, Florida, Georgia, Missouri (1905 and 1907), North Carolina, South Carolina, Tennessee, Texas, and West Virginia. Virginia had a food law enacted at an earlier date. While the enforcement of these laws has in many cases been hampered by lack of necessary appropriations, there has without doubt been much im-

provement in the character of the food products offered on the markets in recent years.

The question of factory legislation, and especially of legislation restricting the labor of women and children, has received both Federal and state attention. It is very doubtful whether the Federal government can constitutionally regulate the conditions of factory labor within the states. Senator Beveridge has sought to accomplish this result by urging in Congress the passage of a bill to exclude from interstate commerce articles presented for shipment by factories or mines employing children under fourteen years of age. Although this measure was not enacted, Congress has passed a child-labor law for the District of Columbia and has also appropriated a large amount ($300,000) for an investigation of the conditions of working women and children in the United States. This investigation is being conducted under the direction of the United States Commissioner of Labor, and a report is expected at an early date. Great activity in the promotion of child-labor legislation throughout the United States has been shown by the National Child Labor Committee, a private organization which was granted articles of incorporation by Congress, March 8, 1907. Numerour state and local child-labor committees have been organized to work in coöperation or affiliation with this national organization. Such bodies have been effective in arousing public sentiment and securing progressive legislation in the Southern states. Some zealous representatives of the movement for factory legislation have, however, failed to give fair recognition to the fact that Southern mills and factories have in many respects provided distinctly improved conditions of life for an operative class drawn from backward rural districts.

As a result of the systematic agitation of recent

years, all of the Southern states have passed laws restricting the labor of children. This restriction has to do with fixing the age at which they may begin work, limiting the hours of labor, prohibiting night work, and requiring certain educational attainments. Some of the states have not as yet gone far in protecting the children in factories, and there is very generally a lack of proper provision for such inspection as will secure the full enforcement of the laws. However, it is believed that encouraging progress is being made in securing for young children the opportunity to obtain at least an elementary education before assuming the burdens of the factory and workshop. Public sentiment is more and more approving this sort of regulation. Akin to the child labor legislation are provisions found in some of the states restricting the hours of labor for adults, providing for sanitary and safe conditions in factories and mines, and defining the employer's liability in case of accident.

Another important field of regulation is that of the supervision of the business of banks and insurance companies. The Federal government established the national banking system during the war, and after the war this system was gradually extended throughout the South. Federal control over the national banks is exercised through the office of the comptroller of the currency, who has under his direction bank examiners assigned to the various districts into which the country has been divided. State regulation of banks in the South is of varying degrees of efficiency. In some states the supervision of banks is intrusted to a corporation commission, and in others there is a special banking department. Among Southern states Oklahoma has aroused an especial amount of discussion in recent years by reason of the fact that she has required her state banks to

maintain a joint fund in the custody of state officers for the purpose of guaranteeing deposits. Experience with this feature of the Oklahoma laws is not yet sufficient to warrant final judgment as to its success or failure.

Although the claim has been made that the Federal government might constitutionally regulate insurance companies transacting business in the several states, this view has not prevailed, and such regulation has been left to the states. The substitution of Federal for state supervision would be welcomed by many of the larger companies, which complain that they are harassed by the great variety of the regulations established by state legislation. Much has been done in the way of removing the above objection by meetings of the insurance commissioners of the various states to secure agreement upon uniform action. All of the Southern states have departments of insurance. In general it may be said that these have been useful in proportion as they have been kept free from political influence. The state insurance departments in some of the states have collected in fees and other payments by the companies a large revenue over and above the cost of maintaining the departments.

If space permitted, many minor instances of state regulation might be included. Of financial importance is fertilizer inspection, which both protects the purchasers from fraud and affords a considerable revenue in some of the Southern states. State inspection of illuminating oils is of a similar character. While the Southern states which have provided for this inspection desire to secure oils of a high standard of safety, they are not indifferent to the possibility of a net revenue from the inspection fees. The regulating activity of Southern states is also seen in the enforcement of requirements for admis-

sion to the practice of various occupations and professions. Among these are law, medicine, veterinary medicine, teaching, optometry, osteopathy, and others.

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THE INFLUENCE OF STATE AND FEDERAL GOVERNMENTS IN PROMOTING SOUTHERN AGRICULTURE.

Boards and Commissions of Agriculture.—For more than fifty years in the Agricultural Societies, discussions have been held on subjects of farming, and through the publication of bulletins and in the columns of the press the State Agricultural Departments have taught the people how to farm. The difficulties surrounding the farmer in the building of his home have been often considered by these organizations, both state and national, and well-trained men have been sent to the farms to instruct concerning the renovation of the soil, rotation of crops, deep plowing and thorough cultivation, the raising on the farm of most of the food for home consumption, the raising of cattle for beef and dairy purposes, and the advantages of labor-saving machines. Many farmers have learned the lesson thus given them by precept and example and have profited by it, but a greater number of others have, until within recent years, persisted in conducting the affairs of the farm under the old ruinous methods which have resulted in annually impoverishing the soil and in reducing profits. In very recent years, however, this continual work on the part of the agricultural organizations, has produced telling effects upon the farmer's life resulting in the increased fertility of the soil and in the introduction on many farms throughout the South of modern methods of planting, cultivating and harvesting the crops. The farmer has gradually grown out of the condition of complaint that " farming doesn't pay " into believing that, after all, farming life can be made one of contentment, independence and wealth.

One of the prominent agricultural writers in 1870 in mentioning the outlook on the farm gives the following diagnosis of the agricultural conditions of the farmer in those days: "The agricultural operations were conducted in strict accordance with the traditions of the fathers. The old methods, transmitted from sire to son almost from the first settlement of the colonists, underwent scarcely any change. In fact the proprietors of large estates felt but little incentive to improve as long as recourse could be had to virgin soil, which admitted of being brought into cultivation at less expense than the old could be restored, or even kept up to a productive standard. The breaking up of the large plantations, which were unwieldy, became a necessity. The only consideration filling the minds of the farmers is to make a living. To do this the lands have been taxed to their utmost capacity. Most of the tobacco in Virginia in 1870 was raised by the negroes, and the state has rapidly lost her standing as a high grade tobacco raising section. Labor-saving machines have been introduced in a few localities. Commercial fertilizers are used to a limited extent, and their economic value and properties are inadequately understood. The improvement of farm animals and the attention to live stock, dairy products, etc., were not given very wide attention from 1865 to 1870."

The commissioners of agriculture, seeming to fully realize the importance of commercial fertilizers, stable manure and compost in bringing up the fertility of the soil, began a systematic campaign in the shape of bulletins and press articles concerning the use of these soil renovators. The first legal inspection of fertilizers began in the South about 1871. But the states were not in full accord on the subject, and Georgia, I believe, was the first to establish a Department of Agriculture and begin the inspection

of fertilizers. The other Southern States followed within a few years Georgia's lead and the farmer was kept fully informed about the grades of fertilizers and the great importance of preserving the manures from the barnyard and incorporating the same in the soils of the farm. Much was issued from these departments in bulletin form about the cattle industry, poultry, and on general live stock subjects.

Agricultural Colleges.—The establishment of the Colleges of Agriculture and Mechanic Arts throughout the country was the result of agitations in the Agricultural Societies in all the states through many years prior to the passage of the Morrill bill by Congress in 1862. It had long been the concensus of public opinion that agriculture should be taught in the universities and colleges of the country, and in a few notable instances like those of the universities of Mississippi and Georgia this discussion crystallized into chairs of agriculture. Very few students, however, prosecuted the subject to any extent prior to 1865.

Over most of the South the natural resources were lying dormant, because the education of the young men had been directed towards law, medicine, the pulpit, and teaching. Senator Morrill, catching the inspiration from the general discussion on agriculture among the planters of the country and aware of the great wealth lying dormant below the surface of the soil, presented his bill to Congress. He and a few other statesmen realized the importance of making great provision for the practical education of young men for engineers and farmers so that an educated and trained intelligence might be brought to bear on the problems of the conservation of the natural resources of the country, and the restoration of the farms into wealth producing properties. The

extensive wild lands belonging to the United States government were set aside for this purpose, and, after nearly fifty years of experience in the development of the colleges established under the terms of the act, the far reaching sagacity of these statesmen has been made manifest.

The work in establishing the Agricultural and Mechanical Colleges in the South was greatly retarded by the War between the States, but before 1880 each state had received its quota of landscript and the land grant colleges were under way of erection. The boards of trustees of these colleges were compelled to do pioneer work because there were no precedents to guide them in planning and building the institutions. The friends of this new education were forced to meet with strong opposition from the advocates of the older educational system, which had been almost universally supported by the citizens of the country for hundreds of years. The farmers themselves were not in full sympathy with the colleges when the doors were opened for the admission of students, and they were disposed to listen to the college professors with a degree of toleration which was at times exceedingly discouraging to these self sacrificing college men. Persistence and patience, however, in the end won, and, after a few years of heroic work on the part of the friends of the new education, the farmers discovered what these industrial institutions meant for them, and they yielded their hearty support and sympathy. The fight between the new and the old systems of education is not entirely over. There are still skirmishes here and there, but the great battles now belong to history and are no longer possible.

The great depression in agricultural affairs from 1865 to 1880 caused the farmers' sons to leave the farms in considerable numbers to seek their fortunes

in other avocations. The opening of the agricultural and mechanical colleges in 1872 in most of the Southern states brought the attention of the boys to the work the government, both state and national, was doing for them, and many of these boys entered the college for the new education, and a new lease was taken on farm life. In the college halls and at the farm the doctrine of soil improvement was constantly taught to son and father. The farmer's wife and daughters were by no means overlooked in this forward march in education. The domestic interests were considered by the college authorities, and studies were introduced in the curricula to teach the girls how to conduct the household economy and lighten the work of drudgery in the home. The preparation of the food under dietary standards became special studies and the girls were taught how to make the dining room a place of attraction to the family where the serving of wholesome food was performed in the most enticing manner. Domestic Science, therefore, became one of the important chairs of the colleges.

Farmers' institutes, or college extension work, at an early date of the college existence were introduced for the purpose of carrying the benefits of agricultural education directly to the farmer's home. These institutes soon became very popular. The tillers of the soil gathered at them to talk experience and quiz the professor who was filled with "book learning," and many interesting and amusing incidents were recorded. The colleges were on trial and the farmers comprised the jury. The teachers sent from the colleges to conduct these institutes were often without practical experience regarding farming life, and they were unable to stand the test. As a result the college suffered. But there were fortunately many men on the faculties who were sons of

farmers, or who had gleaned valuable experience from years of practical agricultural life on the farm before accepting positions in the college. These men sustained themselves in the Farmers' institutes and at the agricultural society meetings—so that through the years the colleges gained friends rapidly among the farmers. The college history of those early days is interesting reading, and one wonders, in reading of those days of struggle, how the faithful men and women working for the colleges succeeded. The results of their victory are great and all honor is due them for their self sacrificing devotion to the cause.

The agricultural graduate on returning home from the college would often find that his father looked upon his education as useless for the practical purposes of successful farming. It is related that one of these bright boys on returning to his home desired to apply to the farming operations some of the advanced ideas he had gathered from his college course and his father told him that "book learning" might do to amuse the professors and the college boys, but when such learning was applied to the farm failure would result. The boy promptly said: "Father, do you not know a great deal about farming and have you not been very successful?" "Why yes, my son," replied the father. "Well, is it not also true that Uncle John is a well informed man about conducting a farm?" asked the boy. "Yes, that is true," said the father. "Well, then, father, if you and Uncle John should write down your experiences learned from your daily life on the farm don't you think the reading of it would be interesting and valuable to your children and to others who know little about farming?" "I believe you are right, my boy," said the father. "Then cannot some other men who have had like experiences with you and Uncle John write books which will be valu-

able to boys who are in college to get an education? ''
The father received his education at that time through his son. The college had reached the farmer through the farmer's son.

To show the growth of the colleges of agriculture through the thirty-seven years of their existence, the following data are given: In 1880 there were 1760 students in the fourteen Southern colleges. The records available are not clear as to the proportion of these students who pursued agricultural courses.

In 1890 there were 2,026 students in the Southern agricultural colleges. The proportion of students pursuing agricultural courses is not clear in the records available. In 1900 there were 9,810 students with 2,025 in agriculture. In 1908, 16,467 students entered the colleges and 4,140 pursued agricultural subjects.

The financial standing of the colleges is equally gratifying. In 1880 the total value of property was $2,175,720 and the income was $396,044 and in 1908 the total value of property had increased to $18,678,-529 and the total income amounted to $3,176,262. This great increase in wealth makes these agricultural and mechanical colleges tremendous factors for the dissemination of useful information to all the people as well as to the farmers of the country.

Experiment Stations.—In 1887, Congress passed a law, known as the Hatch Act, making appropriations of $15,000 for the establishment of an Agricultural Experiment Station in each state of the Union. This fund was supplemented in 1906 by an equal sum by the Adams Act, making the annual appropriation of $30,000, out of the United States treasury, to each state to be devoted to researches for new knowledge in agriculture. By the beginning of 1888 all the states in the South had received the full amount of the Hatch funds appropriated for

1887 and 1888, and the Stations were organized and work of investigation began in earnest.

When first organized, the purposes of these stations were not fully understood by the people, and it took several years of study and experience before the officials in charge of the investigations entered upon a systematic course of researches. Many experiments were planned for the solution of agricultural problems. Some of the men in charge of these experiments were well trained to develop them to final solution. Others were taken from the college chairs without having received the proper training for the peculiar work of the station and much time was consumed in giving these men the experience needed.

The stations have now been in existence for twenty-two years and the following enumeration indicates the general scope of the work undertaken by the experts, and the addition to knowledge resulting from these experiments has been remarkable and exceedingly gratifying:

1. How to increase the fertility of the soil has been considered by all stations and much of value to the farmer has resulted from the experiments.

2. New plants have been introduced by selection and by hybridizing experiments.

3. Cotton, corn, wheat and tobacco have been so greatly improved in quality and production that greatly increased revenue has been brought to the Southern farmer.

4. Fertilizer experiments in the laboratory and in the field have permanently determined what character of food the plant needs and how best to apply the fertilizers to the soil. The farmer has been taught how to intelligently use the fertilizing materials and protection has been given him by law against the introduction within the state of fraudulent brands

of fertilizers. It is now exceedingly difficult for the dealer in fraudulent brands to mislead the farmer. This favorable condition has been brought about through the persistent efforts of State Agricultural Departments and State Experiment Stations.

5. Experiments on beef cattle and dairy herds have placed in the farmers' possession a vast deal of data of exceedingly great value in the feeding and care of stock, and in the proper preparation and marketing of milk, butter and cheese. The chemistry and bacteria of milk, creaming, and butter-making have become well known factors of commerce.

6. The inoculation of the soil with the nitrogen gathering bacteria has made it possible to grow leguminous plants in sections of the country where before inoculation it was almost impossible to cultivate these plants.

7. Climatic questions have been permanently answered, and many of the laws of atmospheric disturbances have become well known and understood.

8. Irrigation has received a large share of attention and the desert has been made to produce in abundance and become habitable.

9. Diseases of plants and animals and insects, injurious and beneficial, have not been neglected by the stations, but great progress has been made in alleviating the distress resulting from disease and attacks of insects by the introduction of preventive and remedial methods.

10. In the testing of the varieties of fruits and vegetables the market gardens throughout the South have been supplied with valuable information concerning the best plants for the markets of the country.

11. Texas fever has been diagnosed and is now under control. Quarantine laws are enforced so that

the Southern cattle men can find a Northern market.

12. The Southern farmer has been taught in many ways how to help himself and has been transformed into an experimenter on his own farm for his own benefit.

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THE ECONOMIC EFFECTS UPON THE SOUTH OF THE UNITED STATES TARIFF POLICY.

THE Federal government during and immediately following the war increased from decade to decade the rate of protection. But during the closing years of actual strife nearly every important Southern manufacturing establishment was destroyed. So that the South fell back to her single industry system of the Nullification era. And between 1865 and 1880 few, if any, voices were raised on behalf of the national tariff policy.

In 1880 Southern cotton manufacturing regained its position of 1860, and a small share of the benefit of the tariff began to flow Southward. However, not until 1890 was there any general appreciation of these benefits. The reaction of the Reconstruction era reared a generation of leaders and statesmen, who, like William L. Wilson, regarded the national tariff as robbery. They spoke the language of 1830,

and men like Vance, who, in ante-bellum times, had been protectionists, were ardent free traders. A small group of Southern congressmen, however—the Louisiana representatives who felt the influence of the sugar interest in their state—favored and defended protection through this whole period. But in 1893-94 when the first great post-bellum fight against protection was waged in Washington quite a number of Southern representatives showed a liking for the system which they had been taught to oppose.

The Piedmont South which had begun to feel the influence of the tariff in 1850 and which had witnessed the first manufacturing era before the war came to its own after 1880. The South was beginning to harness the millions of water power which hitherto had run unused over the falls of the Yadkin, the Catawba, the Savannah, and other great rivers. At Richmond, Lynchburg, and Danville cotton and tobacco manufacturing became important industries; Greensboro, Concord, and Charlotte, in North Carolina, became mill centres; and before 1900 10 per cent. of the population of South Carolina was engaged in manufacturing. And from Augusta, Georgia, to Birmingham, Alabama, the same revolution was in progress. The teeming population of the Piedmont which in ante-bellum times emigrated to the West or was scantily employed just before the war in infant industries, was now sending its surplus to the big towns already mentioned or the hundreds of others like Durham, North Carolina, or Roanoke, Virginia, where they found employment, school facilities and opportunity to rise in the world. The Piedmont soon surpassed the older Eastern agricultural belt in wealth and power.

In 1900 Charlotte, North Carolina, was the centre of a group of one hundred large manufacturing establishments; Atlanta, another of these new cities,

had, in 1902, $20,000,000 invested in the same general classes of industry; and Birmingham at the same time was acknowledged to be the "Pittsburg of the South," producing her 1,500,000 tons of pig iron per year. South Carolina had become the second cotton manufacturing state in the Union, and North Alabama the second iron and steel centre. So great was this change that Southern cotton mills consumed 1,620,000 bales in 1900-01 as against 1,966,000 for the remainder of the country in 1900. While the figures for tobacco manufacturing in the South as compared with the rest of the country are not available, it is unquestioned that a similar development has taken place. These interests were built up under the protective policy and to a great extent were sheltered by the national tariff. Foreign competition was effectively eliminated, high prices for the finished products of Southern industry were guaranteed and the widening markets of the world were kept open to Southerners for "dumping" their surplus in case of need. In short, the manufacturers of the South shared liberally in all the benefits of the monopoly or semi-monopoly conditions of recent decades. And the principal beneficiaries of the system made their views felt in Congress and really did much to defeat the purposes of the second Cleveland administration.

Still, the other potent influences which helped to work the revolution in the Piedmont South must not be overlooked: the existence of a numerous population looking for work, the prevalence of the great water power and the abundance of raw material, all in a climate where housing and steam-production were relatively easy problems. All these forces combined to give the South an entirely different economic aspect. From a purely agricultural section it became a great manufacturing district, taking its own cotton and tobacco from the neighbor-

ing fields and converting them into finished or partially finished products for the world's markets, thus doubling or trebling her profits, adding values to lands hitherto worthless and giving bases to railroad systems which had hitherto hardly earned operating expenses.

The effect, therefore, of the tariff has been the creating of a class of "captains of industry" who own the factories and the railroads and who exploit the resources of the South, who politically and economically control large elements of the population and who occupy the conspicuous positions in society quite as did their predecessors, the great slaveholders. The new industrial aristocracy is a product of the hill country, its great leaders live in New York or other cities of the North, while the masters of the old régime dwelt upon their plantations in the cotton belt or along the rich river bottoms. The newer class of magnates are in close touch with Wall street; they look to the Federal government for the protection of their interests and for privileges just as did their predecessors; and they endeavor to control legislatures and party organizations in the same old way.

Instead of the former planter oligarchy in the Black Belt, the South now has its up-country "interests" with national affiliations, and the state is usually in the control of the newer interests, while the people of the older area are the fighting minority—the "populists" or malcontents. The new South and the old South confront each other very much as the ante-bellum South and the small farmers of the up-country did half a century ago. The position of the dominant economic party has simply been reversed, and the masters of the new régime are held to the nation under the new system very much as were the slavery interests of old.

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2.—Finance.

THE STATE FINANCES OF ALABAMA.*

THE financial history of Alabama since 1865 falls naturally into three periods: (1) Reconstruction finance (1865-74); (2) the period of retrenchment and recuperation (1875-1900); and (3) the period of expanding state activity, since 1901. The first two years of the Reconstruction period were marked by conservatism in expenditures, but the installation of carpet-bag rule was followed by gross extravagance, when there was need of the strictest economy. The total expenditures rose from $655,205 in 1866 to $2,237,200 in 1873; while in 1876, two years after the overthrow of the Reconstruction government, expenditures were reduced to $874,164. The multiplication of offices and the higher salaries under the carpet-bag régime explain its expensiveness. The Democratic administration which followed was

*The material for this sketch was collected with the assistance of the Department of Economics and Sociology of the Carnegie Institution.

marked by rigid economy, and until 1883 the disbursements were kept well under a million dollars. From 1883 to 1888 the annual expenditures were never very far from a million and a quarter dollars. From 1889 to 1900 they rose to an annual average of about two millions, and after 1901 to the neighborhood of three millions. The development of state activities thus indicated may be more clearly shown by the growth of a single item of expenditure; namely, that for public schools. Between 1875 and 1909 the expenditures for this purpose rose from $117,678 to $1,830,211, and were in 1909 just about equal to the total disbursements for all purposes two decades earlier. The payment of pensions to ex-Confederate soldiers and their widows was another growing expenditure, reaching in 1909 the sum of $842,414.

Until 1868 the state employed practically the revenue system of ante-bellum days, excepting, of course, the tax on slaves. But the new constitution of this year did away with the old method of taxing some property at specific rates and substituted a general *ad valorem* system, which was retained by the constitutions of 1875 and 1901. In spite of the high taxes of Reconstruction times, the revenues were insufficient for the expenses of the government, and in every year except 1870 the state was compelled to supplement its ordinary income by loans.

The constitution of 1901 limited the tax rate to sixty-five mills on the dollar, and of this amount thirty mills were assigned to the public schools, ten mills to pensions, and the remaining twenty-five mills to the general expenses of the state government. Other important sources of income are the poll tax, which is applied to the school fund; licenses; privilege taxes from certain classes of corporations; special taxes from oil and fertilizer com-

panies, primarily to cover the costs of inspection; and the profits of convict labor. A great innovation in the state's revenue system was the creation in 1897 of a state tax commissioner with subordinate county tax commissioners to assist the revenue officers in the collection of "delinquent or escaped back taxes and licenses." These officials save the state a large sum (in 1905, $133,754) every year.

The reckless misuse of the state's borrowing power constituted one of Alabama's chief grievances against the carpet-bag government. The disastrous policy of endorsing railway bonds, a favor which was secured in many cases by direct bribery, enormously increased the state's liabilities, and when the Reconstruction government was overthrown the full amount of the public debt was unknown. A commission appointed in 1874 to adjust and liquidate the debt, after much painstaking investigation, found that the direct and contingent liabilities were approximately $30,000,000, whereas on Nov. 10, 1868, the bonded debt had been only $4,726,300. Even the payment of interest on such a sum was impossible in the depleted condition of the state's resources, and a compromise with the bondholders was the only practicable solution. The validity of the ordinary debt was not called into question, but the liabilities of the state on account of carpet-bag aid to railways were in part repudiated, so that the total bonded indebtedness was thereby reduced to $9,357,600. After this adjustment the debt was not again increased, as the sad experiences with public banking in the thirties and with aid to railways in the seventies resulted in numerous constitutional restrictions upon the power of the state to contract loans.

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THE STATE FINANCES OF ARKANSAS.

ARKANSAS suffered more than most of her sister states during the War of Secession from domestic violence among her own citizens; consequently, her finances at the close of the war were in a deplorable condition. Property values, as has been shown, shrank from $180,211,330, including slaves, in 1860 to $38,723,449 in 1865.*

To add to this shrinkage caused by the war, the Reconstruction, with its rapacious reign of ignorance and depravity from 1868 to 1874, fastened on the state a bonded and floating indebtedness of $17,260,362,† including the disputed Holford Bonds which were funded by Act of April 6, 1869, into thirty-year 6 per-cent. bonds. According to the provisions of the famous Fishback Amendment, passed in 1884, $9,725,846.05 of this bonded indebtedness was repudiated.‡

Taxation during this period of the Reconstruction rule practically amounted to confiscation, as may be inferred from this statement relative to Pulaski county: "Our property is all assessed 50 per cent.

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* Reports of State Auditor, 1860–1865. Cf. also *Appleton's Annual Cyclopaedia* 1871, p. 38.

† Reports of State Auditor, 1874, table 34, p. 69.

‡ Amendment No. 1. Constitution of Arkansas, Kirby, W. F., *Digest of Arkansas Laws*, 1904.

above its cash value; and, on that valuation, in 1868, a tax of more than 3 per cent. was levied. * * * Our people are taxed for state, county, and city purposes 6 per cent., the United States taxes increasing it to not less than 8 per cent. This year the taxes in Pulaski county will be $500,000, which, to a population of 10,000 souls, white and black, is unprecedented."* In 1860 the total state and county tax was only 5 7-10 mills; by 1870, the carpet baggers and scalawags had increased it to 40 5-10 mills.

The overthrow of the Reconstruction rule in 1874 marked important changes in the financial policy of the state. The constitution of 1874—the present constitution of Arkansas—forbade any levy of state taxes for any one year to exceed in the aggregate one per cent. of the assessed valuation. No county could levy more than one-half of one per cent., except that it might levy an additional amount of one-half of one per cent. to pay the indebtedness existing at the time of the adoption of the constitution of 1874. The legislatures under the new constitution have kept well within the constitutional limit, the state rate for general revenue since 1905 being only 1.75 mills on the dollar.

The general property tax is the chief source of revenue in Arkansas at the present time, averaging for all purposes 26.25 mills on the dollar, itemized as follows: state tax, 1.75 mills; county tax, 5 mills; municipal tax, 5 mills; state school tax, 3 mills; district school tax, maximum of 7 mills; special road tax, 3 mills; Confederate pension fund, 1 mill; construction of new state capital, ½ of a mill.†

Other sources of revenue are sales of swamp lands, an elaborate fee system, state and county occupation and privilege taxes, the poll tax of one dol-

* *Affairs in the Late Insurrectionary States*, 42d Cong., 2d Ses., p. 332.
† Kirby, W. F., *Digest of Arkansas Laws*, 1904, chapter on Revuue, pp. 1430–1501.

lar prerequisite to suffrage, a graduated lineal inheritance tax varying from 1 to 5 per cent., a collateral inheritance tax of 5 per cent., and a graduated corporation franchise tax varying from $10 on an authorized capital stock of $25,000 to $200 on a capital stock in excess of $1,000.000. Inheritance and corporation franchise taxes are recent innovations in Arkansas, and as yet the revenue from them is small. Only $8,265.25 has been collected from the inheritance tax since its adoption in 1901,* but it is likely that the receipts will be much larger this year because special collectors have been appointed in each county. No estimate can be made of the value of the corporation franchise tax as a revenue producer, because since its adoption in 1907 it has not been kept separate from the other fees that go into the General Revenue Fund. Most of the state and county occupation and privilege taxes are excellent revenue producers, the most lucrative being the $700 state and county liquor license charged under the system of local option, yielding approximately $265,000 a year. Poll taxes average $235,000 annually, of which the whites pay over 75 per cent.

The total taxes—state, county, and city—collected in the year 1908 amounted to $5,737,046.22, of which the negroes paid only $335,163.34, or less than 6 per cent.† With an assessed property valuation of $327,023,552 in 1908, and the creation of a state tax commission, May 12, 1909,‡ which has listed during the current year $40,000,000 worth of property hitherto unassessed, the outlook for a largely increased revenue is bright.

Public expenditures in Arkansas are comparatively small and conservative. The appropriations made by the last General Assembly for the biennial

* Letter of Hon. J. L. Yates, State Treasurer to writer, Nov. 17, 1909.
† Letter of Hon. J. R. Jobe, State Auditor, to writer, Dec. 1, 1909.
‡ *Acts of Arkansas*, 1909, pp. 764–775.

period 1909 to 1911 were approximately as follows: for the legislative, executive and judicial departments of state, $1,000,000; for the State University, Agricultural Experiment Station, Branch Normal, and State Normal, $250,000; for the establishment of four agricultural public schools, $160,000; for charitable institutions, including the Arkansas School for the Blind, the Deaf Mute Institute, the Hospital for Nervous Diseases, the Tuberculosis Sanitorium, and the Cenfederate Home, $750,000; for the State Penitentiary, $350,000; for the State Reform School, $25,000; for the Railroad Commission and special Counsel, $75,000; for the State Guard, $25,000; for the eradication of the cattle-fever tick, $10,000; for a survey of the slate deposits of the state, $5,000; for the relief of the cyclone sufferers at Brinkley, $10,000; for the completion of the state capitol, $330,000.*

All of these appropriations are paid out of the General Revenue Fund, except those made for the State Penitentiary and the completion of the State Capitol, which are paid out of the Penitentiary and Capitol Funds respectively. The biennial expenditures for common schools aggregate $2,000,000; for Confederate pensions, about $950,000, paid to 8,500 pensioners; and for sinking fund purposes, $100,000. These are paid out of special funds, and are absolutely necessary for the maintenance of the state government, as is seen from the fact that the biennial expenditures for Confederate pensions is nearly $100,000 greater than the total state revenue for the year ending Sept. 30, 1909, $852,048.31.

The state debt of Arkansas is $1,250,000, itemized as follows:† 3 per cent. 30-year bonds held by the Permanent School Fund, $1,134,500; University of

* Acts of 1909 and Auditor's statement.
† Biennial Report of State Treasurer, 1907–08, p. 3.

Arkansas Endowment Funds, $116,000; total, $1,250,500. These bonds were issued in 1899 and mature in 1929.

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THE STATE FINANCES OF FLORIDA.

FLORIDA after 1865 did not assume the debts contracted during the Civil War, except to the extent of replenishing the depleted educational funds; nevertheless, Reconstruction brought increased burdens of taxation and indebtedness. The assessed value of property declined from $70,000,000 in 1860 to $26,000,000 in 1870, while the state expenditures leaped in the same period from $115,000 per annum to $300,000 or more, and local expenditures were also greatly augmented. State bonds were authorized in 1868, 1869, and 1871 to the amount of $850,000. A further bond issue of $1,000,000 was authorized in 1873, though one-half of this was to be issued in exchange for outstanding bonds. A four-mill tax was imposed for interest payments and a sinking fund, and it was provided as a part of the contract that no further amount of bonds should be issued.* Under

**Laws of Florida*, 1873, chapter 1937.

the operation of these acts and that of 1885 the recognized bonded indebtedness of the state became $350,000 at 7 per cent., due in 1901, and $925,000 at 6 per cent., due in 1903. When these dates arrived, a refunding act, which made use of a small available sinking fund and $430,833 received from the national government in settlement of a long-standing Indian war claim, reduced the indebtedness of the state to $601,567 in manuscript bonds bearing 3 per cent. interest for fifty years, all of which were taken up by the several educational funds of the state. Florida's bonds are now, therefore, only a claim of certain funds of the state against the state.

Two episodes in this period of Florida's financial experience deserve mention. In 1869 state bonds to the amount of $4,000,000 were issued in aid of a projected railroad.* When the Reconstruction government was overthrown, these bonds were by joint resolution of the legislature repudiated as being "issued in violation of the constitution, and in fraud upon the taxpayers of the state."† The other incident concerns the state internal improvement fund which was pledged in 1855 in guarantee of certain railroad bonds. Since the railroads had failed during the war and since the sale of the roads in the Reconstruction period had not brought in an amount sufficient to retire all the bonds with accumulated interest, the trustees of the fund were compelled, about 1880, to sell 4,000,000 acres of land belonging to the state for $1,000,000 in order to rescue the impaired fund from its serious embarrassment.

Florida's revenue system has remained essentially the same throughout the period under review, and in the main it is similar to that of the other Southern states,—being largely a combination, for both state

*Laws of Florida, 1869, chapter 1716.
†Laws of Florida, 1877, page 156.

and local purposes, of ad valorem and license taxes. The state revenue from license taxes has increased from $22,000 in 1872 to $460,000 in 1908. The assessed value of property has greatly increased in the same period, but not at as uniform a rate. It was about $31,000,000 in 1880; $91,000,000 in 1890; $97,000,000 in 1900; and $159,000,000 in 1908. The increase has been more than 60 per cent. in the last eight years, and has made possible a lowering of the general rate of taxation for current expenses, but on the other hand this has been offset, in a measure, by increased rates for special purposes, such as the four-mill pension tax. In the year 1908 the state treasury received $2,156,949, of which $208,148 came from the hire of state convicts and about $60,000 came as the annual subvention from the national government in aid of higher education and in support of the Agricultural Experiment Station. The disbursements for the same year amounted to $2,042,762, the larger items of expenditure being as follows: pensions, $731,568; maintenance of lunatics, $139,000; the judicial machinery, including jurors and witnesses, about $150,000; the lower schools, $195,000 (an amount largely supplemented by local taxation); higher education, about $200,000, which includes the national subvention as well as some extraordinary expenditures for buildings.

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THE STATE FINANCES OF GEORGIA.

The state would have recuperated quickly after the war but for the misfortune of the reconstruction. The extravagance of the Republican administration piled up the state debt to an alarming degree. At the end of the fiscal year 1866 the bonded debt, including interest and coupons past due, amounted to $828,802.00. By 1871 this was increased to nearly $18,000,000. The largest part of this increase was due to the reckless endorsement of railroad bonds. This policy had been inaugurated before the war in the construction of the Western and Atlantic Railroad and in the aid given to the Atlantic and Gulf Railroad in 1856, but the privilege had been very cautiously guarded. From 1868 to 1870 the state's endorsement was placed on the bonds of thirty-two railroads to a face amount of $30,000,000. Fortunately not all the railroads claimed the aid promised, but the total debt so contracted amounted to $6,923,400. The acts which authorized state endorsement provided, first, that a certain number of miles of track must be completed; second, that a certain amount must be subscribed by private individuals; and third, that the state must be given a first lien on the entire property of the road whose bonds were guaranteed. In some instances these provisions were totally disregarded and bonds were guaranteed for roads of which not a single mile was constructed and to which scarcely a dollar was contributed except by the state.

In 1870 the government came again into the hands of the people of the state, and one of the first acts of the newly elected legislature was to appoint a committee to investigate the bonded debt of the state. As a result of this investigation and two subsequent

ones, the state repudiated bonds to the amount of $7,957,000. The justification of this repudiation was the claim that the provisions of the authorizing act had not been complied with, first in the construction of the requisite miles of road, second in the subscription of the necessary proportion of capital by individuals, and third, that the state's interest was protected by a second mortgage instead of a first lien on the property. In addition to the railroad bonds thus repudiated, an issue of currency bonds was also repudiated on the claim that, though originally prepared to redeem outstanding bonds covering the indebtedness of the Central Bank, the bonds had never been put on the market, but were kept in the treasury, and were afterwards fraudently negotiated by some unauthorized party without the warrant of the state. This repudiation raised a storm of criticism, and for a time hurt the credit of the state, but the convention of 1877 which formulated the present state constitution, not only confirmed the repudiation, but inserted a clause prohibiting any future legislature from ever repealing the act.

The state has followed largely the same financial policy since the war as before, except that rapidly expanding industrial and commercial interests have created new classes of taxable property, and made larger and more varied expenditures necessary. Appropriations are no longer made for canals, turnpikes, and railroads, but educational disbursements have grown rapidly to meet the needs of the State University, the organization of a public-school system, and the establishment of industrial, technical, and normal schools, the appropriation for which in 1908 amounted to $387,426.83. The civil establishment has grown by the creation of new offices, and the appointment of inspectors for fertilizers and oil, a state chemist, a geologist, commissioners of educa-

tion, agriculture, and pensions, and the railroad commission. Appropriations for 1908 amounted to $209,-771.16. The pension list for aged and disabled soldiers, and soldiers' widows, is a very large item, in 1908 $932,302.60, and the appropriation for public buildings is much more important than formerly. For the erection of the new capitol at Atlanta, 1883-1889, $1,000,000 was appropriated, to be defrayed by a special tax levied for five years. The military fund, which had ceased after the war, was again revived by a modest appropriation in 1890 and seems to be growing steadily, amounting in 1908 to $24,-659.27.

The state's industrial progress is to be read even more clearly in the increasing list of taxable property, and in the growth of corporations, especially of public utility, all of which add their quota to the state's income. The liquor tax, first levied during the war, contributes largely to the educational fund. In addition to taxes, the state receives a revenue from the lease of oyster lands, sale of wild land, fees for the inspection of fertilizers and oil, dividends on bank and other stock, and the rental of the Western and Atlantic Railroad, which, leased to a private company, brings in an annual rental of $420,012.

Since the rehabilitation of the state in 1870, and the repudiation of the fraudulent bonds, the state has met every liability fully and promptly.

The reports of the treasurer, Dec. 31, 1908, shows:

Total bonded debt	$7,037,000
Land scrip fund, not funded, on which the State pays the University Trustees 7 per cent. per annum	90,202
	$7,127,202
Annual interest	301,200
Assets of the State (W. & A. R. R. not included)	57,872

A brief comparison may be of interest as showing the growth of the state at different periods:

Nov. 1, 1800	Estimated Revenue	$ 60,065 12
	Estimated Expenditures	48,000 00
	Balance	$ 12,065 12
Nov. 1, 1840	Revenue for the year	$ 587,745 92
	Expenditures	511,043 32
	Balance	$ 76,702 60
Dec. 31, 1908	Balance forward from 1907	$ 820,740 17
	Revenue for the year	5,378,273 16
		$6,209,013 33
	Expenditures	5,570,295 51
	Balance	$ 638,717 82

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THE STATE FINANCES OF KENTUCKY.

FROM 1866 to date the state's taxation has been at a uniform rate upon all property subject to taxation. On the adoption of the present Constitution in 1891, this uniformity was made a constitutional requirement. The rate has varied from a minimum of 30

cents on the $100 to 52½ cents. In 1866 the rate was 40 cents; it was reduced to 30 cents in 1867, at which it remained till 1870, when an additional 15 cents was authorized by a vote of the people for school purposes which previously had only 5 cents of the rate. From 1876 to 1904 the rate fluctuated between 40 and 50 cents, but the part of it apportioned for education was gradually increased until at the latter date, it had reached, for schools, 26½ cents, and for the agricultural and mechanical college ½ cent. In 1906 the school rate was reduced to 26 cents, at which it now (1909) stands. No change has been made in the apportionment to the College, and a sinking fund provision, varying from 5 cents in 1876 to 2 cents in 1909, was incorporated together with the ordinary rate.

In 1897 the miscellaneous indebtedness of the State was such that an increase of 10 cents in the general tax rate was necessary. In January, 1865, the debt of Kentucky amounted to $5,284,037, the state having paid out for war defenses to be returned by the United States government $2,721,400, of which nearly one-half was still owing the state. Kentuckians in 1864 and 1865 had also lost slave property worth $41,404,097, yet the recuperation had been so rapid that Governor Leslie was able to announce in December, 1873, the virtual liquidation in full of the state debt, and Kentucky's annual revenue had risen to $1,032,522.17.

The total valuation of taxable property has increased from about $392,000,000 in 1866 to $406,865,507 in 1873, and to about $800,000,000 in 1909.

Since 1893 the state has collected a franchise tax from public service corporations, the value being fixed by a State Board, and the rate being the same as upon tangible property.

All of the state's bonds, aggregating $966,394,

were paid in 1873, except the school debt, which by the constitution was made a perpetual loan and not redeemable. The balance due Kentucky by the Federal government, Jan. 4, 1867 had risen to $2,438,347, and by January, 1869, this had been only reduced to $1,337,507. In 1892 the state received, as a refund from Federal government of the direct tax raised during the Civil War, $606,641.03. This was turned into the treasury and bonds for this amount were issued for public schools, making the aggregate of the perpetual obligation of the state to the School Fund, $2,315,627, which continues to bear interest at the rate of 6 per cent.

The state debt in 1866, exclusive of school bonds, was in round numbers $3,500,000, and the remnant of this, as has been said, was extinguished in 1873. In 1884, $500,000 worth of bonds were issued, and in 1897 an additional $500,000. In 1903 a Civil War claim of approximately $1,324,000 was collected from the Federal government. With this fund the $1,000,000 bonded debt was extinguished, and no bonds have since been issued. This made possible the reduction to 2 cents of the portion of the tax rate turned into the Sinking Fund. There has been since 1865 no repudiation of any of the state's indebtedness.

The expenditures since 1865 have been principally for the salaries of officials, interest on bonds, and appropriations for the various charitable and penal institutions of the state. In addition to these regular expenditures there have been, however, certain special appropriations. In the late sixties and early seventies there were appropriations amounting to about $270,000 for an executive wing to the old capitol. By October, 1873, expenditures had risen to $1,182,601.48. In 1904, 1906, and 1908 there were appropriations amounting to $1,716,000 for a new

capitol and grounds. And in 1908 there was an appropriation of $500,000 for aid of State Normals and the State University, in addition to the regular annual allowance to these institutions.

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THE STATE FINANCES OF LOUISIANA.

WITH the end of the War of Secession and the establishment of the Reconstruction régime in Louisiana this state shared with its neighbors the unhappy experience of extravagant and corrupt administration and consequent financial disaster. High salaries and the multiplication of useless offices necessitated heavy expenditures, which rose from $1,162,624 in 1865 to $7,578,148 in 1871. In the latter year the average cost to the state of each member of the legislature during a single session was $113.50 a day. A decade later, in 1882, the total cost of the state government was $1,617,164, or only about a fifth of what it had been under the Reconstruction rule. The gradual development of state activities since this period has been accompanied by a steady growth of expenditures, which amounted to $3,546,276 in 1893 and to $5,209,180 in 1907. In this last year the sources of expense were: education, $1,180,345; levees and drainage, $1,691,370; salaries, charities, and general administrative purposes, $1,183,481; penitentiary, $345,750; other items, $253,104.

With the large disbursements of the Reconstruction period, taxes were necessarily heavy. In 1870 the rate was 14½ mills on the dollar; in 1871, 21½ mills; since 1879, 6 mills, the limit fixed by the constitution. The total receipts in significant years have been as follows: 1865, $875,659; 1869, $4,397,759; 1871, $6,616,845; 1882, $2,353,622; 1893, $3,956,855; 1907, $6,628,502. The chief sources of income are the general property tax, special taxes in parishes in which it is necessary to construct and maintain levees, and numerous license taxes. Only one assessment of property is made for state, parish, and municipal purposes. The poll tax is collected by the parishes and the proceeds are applied to the school fund.

On Dec. 1, 1865, the public debt of Louisiana stood at $11,182,377; in the following year it was increased by $1,997,500 for levees and for the payment of back interest and overdue bonds. In the years 1867-70 inclusive $11,000,000 more in bonds were issued for levees, the penitentiary, and in aid of the Mississippi and Mexican Gulf Ship Canal Company. As a result, the state debt at the end of 1870 amounted to $22,589,628, and as a check to further extravagance the constitution was amended so as to limit the public debt to $25,000,000. The endorsement of railway bonds, however, had created a vast amount of contingent liability, so that on Jan. 1, 1872, the total debt, actual and contingent, stood at $41,194,474. The validity of all the debt above $25,000,000 had been called into question, and the courts enjoined the payment of interest upon the bonds under suspicion. Later, all the bonds issued after the adoption of the amendment were declared void. In 1874 the legislature authorized the refunding of the debt by the exchange of the old bonds for a new issue at the rate of sixty cents on the dollar, and the courts again

enjoined the funding of the suspected bonds. In 1875 the legislature forbade the refunding of about $14,000,000 of the old debt until the courts passed upon its validity. The legality of most of this sum was eventually established, and it was funded like the rest of the debt. The high rate of interest—7 per cent.—necessitated an extra state tax of 5.1 mills on the dollar, which it proved extremely difficult to collect, and the state defaulted in the payment of interest. In 1879 the interest rate was reduced to 3 per cent. from 1880 to 1895 and 4 per cent. thereafter, and the tax for interest was limited to three mills. Bondholders, however, had the option of exchanging, at the rate of seventy-five cents on the dollar, their old bonds for new bonds, to bear interest immediately at 4 per cent. An interesting attempt to evade the Eleventh amendment to the Federal constitution was made by bondholders in New York and New Hampshire, where the states took the securities of their citizens and attempted, unsuccessfully, to sue Louisiana. In 1909 the bonded debt stood at $11,108,300, and bore interest at 4 per cent.

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THE STATE FINANCES OF MARYLAND.

At the present time (1910) the finances of the state are administered by the Treasury Department, consisting of a comptroller, chosen biennially by popular vote, with an annual salary of twenty-five

hundred dollars, and a treasurer, appointed by the General Assembly at the same salary. The comptroller is vested with a general superintendence of the fiscal affairs of the state. He prepares estimates of revenue and expenditure; enforces the prompt collection of all taxes; preserves all public accounts, and grants all warrants for money to be paid out of the treasury in pursuance of appropriations by law. The treasurer receives and deposits the moneys of the state, and disburses the same upon warrants drawn by the comptroller. He provides for the payment of the interest of the state debt, and for purchases on account of the sinking fund.

The funded debt of Maryland aggregated on Sept. 30, 1909, $6,718,926.13. The original loans, which have all been refunded at 3½ per cent., were issued, as perviously stated,* to aid in the construction of works of internal improvement, largely the Chesapeake and Ohio Canal, and the Baltimore and Ohio Railroad; for the erection of state institutions, and to assist in the public defence during the late war. Since 1900 additional loans have been emitted for public buildings and for state roads. As an offset to this debt, the state holds productive stock and accumulating sinking funds of the aggregate sum of $6,038,949.72, leaving the net debt to be $679,976.41. As might be expected the credit of the state is high, its bonds being sought for purposes of investment and by financial institutions and by individual capitalists for a wide area.

Article XV. of the Maryland Declaration of Rights, declares that "every person in the State, or person holding property therein, ought to contribute his proportion of public taxes for the support of the Government, according to his actual worth in real and personal property." This is the

*See article, "The State Finances of Maryland," in volume V.

basis of Maryland taxation. A direct tax is levied upon all real and personal property, for purposes of public education and to provide interest and sinking funds for the funded debt. It is imposed upon individual and corporate property, and upon the capital stock of corporations, less the assessed value of parts of its capital already taxed or non-taxable. Personal property is listed by the statement of the taxable, and valued by the assessor. The last general assessment was made in 1896. Revisions are, however, made from year to year by the county boards and by the Appeal Tax Court of Baltimore City. A tax commissioner is appointed by the Board of Public Works for a term of four years, at an annual salary of twenty-five hundred dollars, to assess and revise for state purposes the shares of all incorporated associations or institutions liable to taxation.

The further development of taxation in Maryland has been marked "by the abandonment of 'equalization'; by the extension of exemption; by the differentiation of corporation taxes; by a decline in the relative importance of license taxes; by the addition of inheritance, mortgage and other new taxes, and by a firmer application on the part of the courts of Article XV. of the Declaration of Rights."

The assessable basis of the state for the year 1909, was $820,831,339 of which $480,278,356 was in Baltimore City, and $340,552,983 in the counties. The rate of the state tax for the year, 1909, was $0.16 on each $100.

Sources of revenue other than this general property tax, are the sale of traders' and other licenses, a bonus or franchise tax of one-eighth of one per cent. upon the capital stock of all newly created corporations, a franchise tax upon the deposits of savings institutions, a part of which accrues to the

locality where the institution is located; a tax of one-half of one per cent. upon the gross receipts of electric light and electric construction corporations; of one per cent. upon the gross receipts of railroad corporations; and of a designated per cent. of the gross receipts of other specified corporations. A state tax is also imposed on collateral inheritances, and on commissions of executors and administrators. The excess of fees of public officers and the liquor license in Baltimore City constitute other sources of revenue.

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THE STATE FINANCES OF MISSISSIPPI.

Beginning with 1865 and extending to 1870 there was practically a political interregnum; the state was under military rule during that time, and neither the receipts nor the expenditures represented financial necessities. In 1865 Governor Sharkey, the provisional governor, in order to provide for the needs of administration, levied a tax on stores, taverns, gaming tables, restaurants, peddlers, brokers, banks, and $10 on every bale of cotton sent

to market. The receipts from these sources, during the provisional government, were $152,814; expenditures, $68,942.

At the beginning of the Alcorn administration in 1870 the state indebtedness was $1,178,175. There was $800,000 in uncurrent funds of the Confederate period in the treasury. The new administration provided for the issue of $500,000 in certificates of indebtedness, and bonds to the same amount to retire the certificates. The great burden of taxation was thrown upon land, which was about all that was left to the people, with the result that by 1875 during the Ames' administration, one fifth of the taxable area had been forfeited for non-payment of taxes. In 1875, in round numbers, 19,600,000 acres were assessed to owners at $82,000,000, and 3,700,000 acres were held for non-payment of taxes, and assessed at $12,000,000. The total land valuation was $94,000,000. The state taxes levied on the owners was $595,000, in all, $680,000.

At the end of the Reconstruction period, the state debt was $3,197,036, which, while large, was small when compared with the debt of very many states of the South.

With the return of home rule there was an immediate restoration of state credit, caused by a marked reduction of expenditures. The legislature from 1876 to 1880 followed a plan of rigorous economy, and in the latter year the debt statement was $2,204,398. Of this permanent debt, $1,818,145 was trust funds on part of which the state paid interest for the support of education, leaving a debt to be met when due of $386,252.

The state tax in 1882 was 2½ mills on the dollar. The land listed for taxation, about 29,500,000 acres, had an average valuation, for taxation, of $3 an acre. About $220,000 was levied as a state tax on

land, and about half that amount was collected as a privilege tax on business. The sum of $168,000 was collected from saloons.

By 1886 the disbursements of the state reached the sum of $1,000,000 annually. The value of property had greatly increased, but insufficient revenue was raised from taxation and the deficits were made up by issuing bonds.

Under the constitution of 1890 the state auditor and treasurer each has a term of four years and is denied reëlection to succeed himself or each other. The treasurer is required to publish annual statements with a verification by the governor, and the governor is required to make unannounced examination of the treasury with publication of the condition discovered. The constitution of 1890 also provided that all public moneys of the state should be actually kept in the vaults of the state treasury; but a law providing for depository banks for state funds was passed in 1908, and its constitutionality was upheld by a divided court.

Under the present revenue law the State tax rate is six mills on the dollar, and the same rate has been in force since 1900.

There has been a rapid increase in appropriations in the past decade; for the period 1896-1900 they were $6,792,782; 1900-1904, $10,580,365; 1904-1908, $13,173,187.55; 1908-1909, $6,523,710.91; for 1910-1911, $7,721,437.30; and the assessments have doubled in the same period.

The present payable debt of the state is $1,253,-529.07, the non-payable, consisting of trust funds for educational purposes, $2,336,197.58.

The total assessment of the state, real, personal and corporate, is $383,823,739.

The expenditures of the state are largely for common schools, universities and colleges, eleemosynary

institutions, administrative departments, interest on debt, and for expenses of the legislature.*

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THE FINANCES OF MISSOURI.

As a result of the large public debt arising from state and local aid of railroads, the constitution of 1865 prohibited the granting of the state's credit in aid of any person and made the giving of such aid by counties, cities, etc., dependent upon the consent of two-thirds of the voters. The depression resulting from the panic of 1873 strengthened the popular demand for further restrictions. These found expression in the constitution of 1875 which contains very strict limitations upon debt and taxation.

The prohibition upon the granting of public aid to any person is made to apply to local governments as well as to the state. No state debt in excess of $250,000, nor any local debt for any amount, can be created unless ratified by two-thirds of the voters of the state or locality. Debts of local governments can not exceed 5 per cent. of the assessed value of taxable property. A recent amendment permits certain cities to incur an additional 5 per cent. for waterworks and lighting plants. Counties may also

* For itemized statement of expenditures see page 101, Auditor's *Report*, 1907–1909.

exceed the limit for constructing a courthouse or jail.

The state tax on property, exclusive of that required for the public debt, cannot exceed fifteen cents on the $100 valuation, and rates for county, city, and school purposes are likewise fixed at a maximum which cannot be exceeded, except for the erection of public buildings. Under the constitution of 1865 exemptions of property from taxation, except public property, were prohibited. This led to the adoption of the general property tax instead of the detailed enumeration of specific subjects of taxation as in the preceding period. This has continued under the present constitution. The system of taxing bank shares at the property rate was continued and extended to trust companies and domestic insurance companies. Foreign insurance companies are taxed 2 per cent. on their gross premiums, while express companies are taxed 1¼ per cent. on their gross receipts from state business. Poll taxes ceased to be levied for state purposes in 1872. State license taxes exist for auctioneers, brokers, dramshops, peddlers, hunters, ferries, automobiles, and billiard tables.

During the present period high license on dramshops has been introduced, the present semi-annual tax being $100 to $200 for state purposes and $250 to $400 for county purposes, the exact amount to be determined by the county court. In addition, cities may levy a tax of any amount. Considerable revenue is derived from a so-called inspection fee of one cent a gallon and two cents a package on beer. The same is true of incorporation fees of $50 for the first $50,000 of capital stock and $5 for each additional $10,000. A collateral inheritance tax of 5 per cent. is levied for the benefit of the State University. Interest on state deposits and fees of state officials

produce considerable revenue. The property tax is the chief source of local revenues and its administration continues chiefly in the hands of locally elected officials. In 1865 provision was made for state and county boards of equalization. The State Board of Equalization equalizes assessments among the counties, and makes the original assessment on railroad, bridge, telegraph, and telephone property. While the law provides that property shall be taxed at its true value this is not observed in any place, and the State Board has not been able to prevent gross inequalities in assessment among the different counties.

State activities and expenditures have greatly expanded since 1865. In addition to the University of Missouri, five state normal schools, and Lincoln Institute for colored students, are supported by the state, which also apportions one-third of the general revenue among the counties for the support of public schools. There are four state hospitals for the insane, state institutions for the blind, deaf and dumb, feeble minded, consumptives, juvenile offenders of both sexes, and homes for Federal and Confederate soldiers. Several state departments promote agriculture and industry, and good roads are fostered by state appropriations.

By 1903 the state bonded debt, which in 1865 was approximately $30,000,000, had been extinguished. There remain permanent certificates of indebtedness to the public school and university funds approximating $4,400,000, the interest on which is paid by a state property tax of two cents.

For the biennial period ending Dec. 31, 1908, the total receipts into the state treasury aggregated $11,495,819, of which approximately one-half was derived from the general property tax. Of the remainder, $587,199 represent the earnings of the peni-

tentiary, and $1,436,108 the income of eleemosynary institutions derived chiefly from payments for county patients.

Expenditures for the same period aggregated $11,930,705. Of this amount almost exactly one-quarter was appropriated for public schools. Approximately $1,700,000 were expended for the University and the normal schools, and $2,600,000 for eleemosynary institutions.

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THE STATE FINANCES OF NORTH CAROLINA.

SINCE the Civil War, and particularly since about 1890, the expenditures of North Carolina have increased rapidly. This has been caused chiefly by increases in appropriations for educational and charitable purposes. The following table shows the chief expenditures in 1908:

Pensions and Soldiers' Home	$415,737.00
Educational Institutions	378,048.67
Hospitals for the Insane	369,600.47
Interest on debt	337,098.00
Public Schools	280,083.62
Executive Departments	222,466.14
Penal Institutions	145,368.84

Deaf, Dumb and Blind	$129,118.84
Judiciary	88,448.40
Printing	53,942.84
State Guard	20,469.56
General Assembly	18,702.72
Orphan Asylums	16,250.00
Miscellaneous	130,719.71
	$2,605,954.81

The state debt of North Carolina on Dec. 1, 1908, amounted to $6,886,000. Of this sum, $3,427,000.00 consists of four per cent. "consolidated" bonds issued in 1880 in lieu of various bonds issued prior to the war and during Reconstruction; $2,739,000 consists of six per cent. "construction" bonds issued in lieu of the bonds issued in 1853–1855 to aid in the building of the North Carolina Railroad, and $720,000 consists of various classes of bonds issued in recent years.

The following table shows the receipt of the state Treasury from all sources, except temporary loans, for the year ending Dec. 15, 1908:

Quasi-Private Receipts:		
Dividends on stocks *	$248,012.00	
Fees	165,391.37	
Earnings of State institutions	150,736.28	
Appropriations from Federal Government	60,000.00	
Miscellaneous	67,535.17	
		$691,674.82
Tax Receipts:		
General Property Tax	$1,400,144.96	
License Taxes	157,494.92	
Corporation Taxes (Quasi-License Taxes)	290,865.02	
Income Tax	35,802.09	
Poll Tax	34,928.58	
Inheritance Tax	5,533.60	$1,924,769.17
Total		$2,616,443.99

General Property Tax.—Since the adoption in 1868 of the present constitution, which provides that all property shall be taxed by a uniform rule, the general property tax has taken the place of the tax on real estate as the chief fiscal resource of the state. The rate of the general property tax in 1908 was 43 cents, and it was apportioned as follows: (a) for general state purposes, 21 cents; (b) for pensions, 4 cents; (c) for public schools, 18 cents. The part of the state tax levied for public schools is retained by the county officials.

* The state owns 30,002 shares of stock in the North Carolina Railroad Company, and 12,666 shares in the Atlantic and North Carolina Railroad Company.

The system of assessment used in North Carolina is that known as the "listing system." Every fourth year, the commissioners of each county appoint "three discreet freeholders" in each township who "ascertain the true value in money of every tract or parcel of land or other real estate, with the improvements thereon and personal property." This board is empowered to administer oaths. In years other than assessment years, the commissioners appoint one list-taker for each township. All lands in the township are listed by him at the valuation previously placed on the same by the board of assessors. Personalty, however, is listed anew each year.

By a series of laws enacted since 1890 the duty of assessing the property of corporations has been largely transferred from the local to state officials. This power was first exercised by the railroad commissioners, or, for other classes of corporations, jointly by the auditor and treasurer, but since the replacement in 1899 of the railroad commissioners by the Corporation Commission, the duty of assessing corporations of all kinds has been gradually entrusted to the Commission.

License Taxes.—Since the war, the number of license taxes has been increased and almost every form of business now bears its tax. Most of the license taxes are imposed for the sole benefit of the state, but some of them are divided with the county in which they are collected.

Corporation Taxes (Quasi-license Taxes).—In addition to the ordinary license taxes, taxes are levied on certain classes of corporations, or rather on businesses usually carried on by corporations. These taxes are called license taxes and as such are within the provision of the North Carolina constitution, which requires that all kinds of property must be assessed at the same rate. Railroads pay a tax, which

ranges from $2 to $5, according to earnings, on each mile of trackage. Insurance companies pay an annual license tax and also a gross-receipts tax of two and one-half per cent. Telegraph, telephone, and express companies pay a tax of two and one-half per cent. on gross receipts from intra-state business. A franchise tax, in proportion to their capital stock, is levied on all "private business" corporations, except railroad, insurance, building and loan, telephone, telegraph, and express companies. This tax ranges from five dollars, for corporations having a capital stock of $25,000 or less, to $500 for those whose capital exceeds one million dollars.

Poll Tax.—The Constitution adopted in 1868 provides that the General Assembly shall "levy a capitation tax on every male inhabitant in the state over twenty-one and under fifty years of age, which shall be equal to the tax on property valued at three hundred dollars."* The county commissioners are empowered to exempt persons who are too infirm and poor to pay it. The tax is devoted almost entirely to the school and poor fund of the county in which it is collected. The amount of the tax in 1908 was $1.29, and of this only twelve cents was paid into the state treasury. Since, however, the rate is prescribed by the General Assembly, it may properly be considered a commonwealth tax.

Income Tax.—For a considerable period before 1860, the income tax was an important element in the fiscal system of North Carolina. Taxation of personal property was at first a tax on the income from various forms of such property; but since the adoption of the present constitution, personal property has been taxed in all respects as real property.

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*The Supreme Court of North Carolina in the case of Russell, governor *vs.* Ayers, auditor (North Carolina Reports, February term, 1897, No. 151), held that a revenue act not observing the constitutional proportion was void.

The constitution of North Carolina authorizes the taxation of incomes, provided that no income may be taxed when the property is taxed from which the income is derived. Acting under the limitations of this provision, the General Assembly imposed in 1908 the following tax on incomes: Incomes derived from property not already taxed and from salaries, fees, commissions, in excess of $1,000 are taxed one per cent. The tax is of no fiscal importance.

Inheritance Tax.—The small tax on inheritances imposed originally in 1847, and modified from time to time, was repealed in 1874. In 1897 a new inheritance tax was imposed by the General Assembly, which promised to be much more productive as a fiscal measure, but in 1899, the General Assembly abolished the tax. The present law, enacted in 1901 and amended in 1907, is as follows: All legacies of $2,000 and less are exempt, the rate ranges from three-fourths of one per cent. to fifteen per cent. and is graded chiefly according to consanguinity. In the remote degrees, however, the tax is progressive, according to the amount of the inheritance. The yield of the tax as yet is small.

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THE STATE FINANCES OF TENNESSEE.*

In Tennessee, as elsewhere in the South, the war brought a train of disaster. Wealth in the form of slave property was annihilated; and Governor Brownlow's hope that the negro, as a laborer, would pay a poll and property tax, which would more than make up for the revenue derived from slave property was necessarily slow of accomplishment. Nearly all the railroads had been practically destroyed, and property values as a whole were much lower. Again, there was serious discord among the white people of the state, first between the Southern and the Union sympathizers, and, after a few years, between factions in the Democratic party. Moreover, the war prevented the possibility of payment of interest upon the state debt, and this constantly accumulated until the state was entirely unable to pay. The indebtedness was also made larger by the notes of the Bank of Tennessee, which had been issued during the early years of the war, and, which after the liquidation of the Bank, were judicially determined to constitute an obligation upon the part of the state. Finally, the Brownlow administration was responsible for the further issue of bonds professedly for the relief of internal improvement companies. Hence, the state found itself confronted with an increasing debt, the attempts to settle which formed, from 1870 to 1883, the most important issue both of the political and of the economic life of the state. As the story of the settlement of the state debt of Tennessee has been summed up in another part of this work,† a further discussion is rendered unnecessary. Suffice it

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†By the Hon. Cary A. Folk, Vol. II, pp. 541–4.

to say that a part, known as the state debt proper, was paid in full, while the balance was "compromised," in new bonds at fifty cents on the dollar. In the last few years careful management of the sinking fund has resulted in the reduction of the outstanding debt to about twelve and one-half million dollars (1908).

Upon the conclusion of hostilities and the re-establishment of civil government throughout the state, the system of taxation which existed at the beginning of the war was taken up without much important change. The receipts from property having greatly fallen off, the tax on privileges played a larger part and the merchants bore a heavier burden. This state of things rapidly changed. In 1870 was adopted the new constitution, which, for the first time, required the legislature to tax all property. Consequently, the general property tax, which had been in evolution since the earliest days, finally reached its full development. As in other states, the attempt to find an equitable basis for the taxation of railroads has proved since the first endeavor, in 1875, the source of much friction and litigation.

With characteristic conservatism, the state has maintained the older forms of taxation. The constitution of 1870 authorized the continuance of the poll tax. The system of licenses has been expanded into what Professor Plehn has called "a carefully worked out system of privilege taxes upon the exercise of various occupations which supplements the general property tax." In addition, special privilege taxes, payable to the comptroller or other state officers, are levied against certain classes of corporations.

In 1893 was added the taxation of collateral inheritances. This, with the old taxes on transfers or realty and on litigation, and with certain fees,

completes the present revenue system of Tennessee.*

The development of taxation in Tennessee has been characterized by frequent changes in the administration of assessment, etc., which, in the judgment of the state officers, have been disastrous. There has been also the familiar complaint that personal property escapes its due share of the burden of taxation.

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THE STATE FINANCES OF SOUTH CAROLINA.

DURING the period of white supremacy in legislation after the close of the war, the expenses of the state government of South Carolina are given as follows: For the fiscal year 1865-66, $266,248; for the fiscal year 1866-67, $474,453.

During the period from 1868 until 1872, when the negro exercised supreme authority in the halls of legislation, reckless extravagance and corruption

*The gross receipts and gross expenditures have been as follows:

	Gross Receipts.	Gross Expenditures.
1867	$2,409,616.36	$1,819,665.82
1881–82 (biennium)	1,870,224.02	1,584,633.33
1899–1900 (biennium)	6,120,231.44	6,095,299.87
1905–06 (biennium)	6,466,318.71	6,432,497.01

marked the administration of public affairs. Within these four years the public debt of the state was increased from about five million dollars to about sixteen million dollars. Of the latter sum, six million dollars were afterwards declared illegal, leaving a valid debt of ten millions.

The total value of the taxable property of the state in 1871 was $113,809,207; the amount of the tax laid this year (1871) was $1,505,143. By reason of the two-fold fact that the negro legislature abolished the State Bank (1870), thus cutting off from the state treasury a large annual income, and then continued to make extravagant appropriations, the deficit in the treasury became more and more alarming. For example, the expenses of the two houses of the legislature for a session of eighty-five days, ending March 17, 1874, are reported as $926,101. The rate of taxation during these years was virtually the same as that of the year 1871, indicated above. Theoretically the legislature did not attempt to impose heavy taxes upon property values in the state, but the legislators did not hesitate to make appropriations far in excess of the revenues expected each year. They did not concern themselves about paying full interest on the public debt, and with reckless haste they incurred obligations that became a permanent burden upon the people.

In 1873 and afterwards, therefore, we find statements made concerning a very heavy floating debt laid upon the state in addition to the bonded debt. This floating debt included the following items:

(1) Interest on the bonded debt; (2) the debt fundable under legislative acts adopted in 1866; (3) pay certificates, etc.; (4) debt due to the Blue Ridge Railroad Company, known as Blue Ridge Scrip ($1,797,352); (5) miscellaneous.

From 1876 until the present time, the financial his-

tory of South Carolina is, for the most part, the story of the increase in the quantity and the value of taxable property. Land values have increased with great rapidity, especially in those sections of the state where agriculture flourishes. A few statistics about crops will indicate the rise in land values, and also the increase in the amount of bank deposits: In 1870 South Carolina produced 224,500 bales of cotton; 7,614,207 bushels of corn; 783,610 bushels of wheat; 613,593 bushels of oats; 83,252 bushels of Irish potatoes. In 1907 these crops amounted to the following: 1,186,672 bales of cotton, 29,807,000 bushels of corn, 2,669,000 bushels of wheat, 3,900,000 bushels of oats, 630,000 bushels of Irish potatoes.

In 1907 the total value of the cotton crop was $72,657,817; the value of all other products of the soil was $78,412,764; the value of all live stock was $28,000,000 (estimated); the value of mineral products, including stone, phosphate products, gold, clay products, etc., in 1906, was $11,090,111; the value of cotton-seed products, in 1906, was $6,258,132.

Taxable values have increased, not merely in the matter of real and personal property as indicated above, but also in the establishment of great manufacturing plants and the building of railroads throughout the state. In 1908 the total value of taxables was $271,368,000; of this amount the cotton mills of the state were assessed at $30,134,424. In addition, there were banks and railroads; express, telegraph, and telephone companies; fertilizer manufactories, lumber mills, planing mills and cotton-seed oil mills; large plants for the manufacture of brick and tile, furniture, cigars; water, light and power companies, insurance companies, navigation companies, building and loan associations.

The increase in the value of the property in South

Carolina may be indicated by the brief statements that in 1877, the first year after the restoration of the white people to the position of supremacy in the government of the state, the total amount of taxables was $135,735,863; ten years later, in 1887, the taxable values amounted to $141,074,347; in 1897 they were $173,871,181; and in 1907 they reached the sum of $267,438,037.

The increased revenue from taxation as early as 1887 appears in the statement that the sum of $1,568,417 was the aggregate tax for all purposes raised from the taxables ($141,074,347) of that year; the sum of $2,315,275 was raised from the taxables of 1897 ($173,871,181); and the sum of $3,962,912 was the revenue drawn from the taxable values of 1907 ($267,438,037).

The following table, taken from the official reports on file in the office of the comptroller-general, shows the steady growth in values and the consequent rise in the amount of annual revenue for the period of ten years following the year 1899:

	Total Taxables.	Aggregate Tax for all Purposes.
1899	$174,600,035	$2,357,008
1900	178,845,730	2,419,285
1901	189,333,109	2,605,799
1902	195,776,316	2,683,550
1903	204,405,877	2,843,030
1904	210,331,854	2,975,906
1905	220,224,505	3,512,181
1906	249,534,422	3,835,618
1907	267,438,037	3,962,912
1908	271,367,956	4,145,894
1909	271,106,302	4,280,307

The apparent decline in values in 1909 is explained by the fact that certain insurance premiums, previously included among taxables, were dropped from the list.

The objects of taxation named in the schedules are (1) the tax for state purposes: from 1897 until

1905 this was 5 mills; in 1905 it was made 5½ mills; in 1907 it was reduced to 4½ mills; in 1908 the rate again was 5½ mills, and in 1909 5¼ mills; (2) the tax for county purposes: the rate of this tax varies among the counties from 2¾ mills to 6½ mills, with occasional special taxes; a tax of ½ mill is levied for public roads; there is also the constitutional 3 mill tax for public schools; (3) the regular poll tax.

From 1895 until 1907, under the State Dispensary Act, the profits received by the state from the sales of liquor were set apart for the support of the public schools. In 1898 a tax was imposed upon all incomes above the sum of $2,500. The officials report, however, that they have found it difficult to collect this income tax.

The following statistics from the report of the comptroller-general for the fiscal year 1908 indicates the present financial condition of South Carolina: The total debt of the state is $6,532,915.63, of which the sum of $5,613,781.69 is in 4½ per cent. Brown Consol bonds and stocks. The state will have the right in 1913 to refund the latter, and the comptroller-general claims that this refunding can be done upon a basis of 3½ per cent. The sinking fund at present amounts to $738,000, and it is expected that the amount available from this fund in 1913 will be about $900,000. The total receipts from all sources are (estimated) $1,664,549.12, while the total expenditures for the maintenance of the government are $1,641,078.25.

The principal sources of the state's revenues are taxes on lands and buildings, personal property, incomes, bonds, mortgages, notes and credits, insurance premiums, fees for issuing licenses to corporations, fines, and forfeitures. The principal expenditures are for interest on the public debt, support of schools, pensions to soldiers, maintenance of state

hospitals for the insane and for the deaf, dumb, and blind, and the salaries of public officials.

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THE STATE FINANCES OF TEXAS.

UNDER the military and the conservative Throckmorton governments, which extended to May, 1870, expenditures were small and were met by the use of the United States bonds and interest coupons on hand at the close of the war and by a low rate of *ad valorem taxation,* a graduated tax upon the net income of persons, partnerships, and corporations doing business within the state, and a tax upon salaries. The returns from the income and salary taxes were small, owing to evasion, but the *ad valorem* tax was rigidly collected. The Reconstruction was inaugurated in May, 1870, and was overturned in the election of December, 1873. During this period the debt created in aid of the war was declared void, and excessive zeal led to the nullification of the civil debt contracted during the war and of a part also of the civil debt incurred before 1861. The total pre-reconstruction debt recognized amounted to $251,048.

The expenditures under the Reconstruction administration were beyond the ability of the state, but this was the result of extravagance rather than of corruption. There was some jobbery practised, but it was on a petty scale and did not attain the proportions observable in the other Southern states. The enlarged scale of expenditures made heavier taxation necessary. The general property tax was maintained at one-half of one per cent., but this did not represent the full burden on property, for county and city rates added brought the total rate to more than 2 per cent. A poll tax of $1 was levied for the benefit of the available school fund, and the receipts from this tax, together with one-fourth of the receipts from other state taxes, enabled the fund to resume distribution which had been suspended since 1863.

The receipts from taxation were not sufficient to run the government, however, and a funded debt of $643,800 and a floating debt of $1,455,148 were accumulated. Two railroad bond subsidy acts were passed, but owing to the refusal of the state comptroller to countersign the International Railroad bond issue, this subsidy fell through, and a land grant and exemption from taxation were substituted. Land was also substituted for the other bond subsidy.

The critical financial condition of the state which confronted the first administration succeeding the Reconstruction was met by the use of the public credit. The floating debt was reduced by Aug. 31, 1875, to $614,326, while the funded debt was increased to $4,107,588. An increase in debt of $2,091,587 was due mainly to issue of pension bonds to veterans of the Texas Revolution and to claims against the school fund for teachers' services prior to Jan. 1, 1874. The bulk of the debt was in the form of 7

per cent. and 10 per cent. bonds. By 1880 the 10 per cent. bonds were refunded into issues bearing 5 per cent. and 6 per cent., and during 1881 and 1882 a surplus of revenue enabled a debt payment of $990,-290 to be made, $932,000 of which was of the 7 per cents. Since 1882 the principal of the debt has been reduced only $50,230. The policy followed has been to concentrate the holding of the debt in the special funds of the state institutions and to refund it at lower rates of interest. The holding of the debt by the special funds is making it possible for the state to put it on a 3 per cent. basis. On Aug. 31, 1909, the bonded debt amounted to $3,989,400, and all but $37,900 was held by the special funds.

Recovery from the war and the Reconstruction was slow, and it was not until 1879 that the state treasury was once more able to meet its obligations without delay. This condition was reached, despite normally increasing expenditures, as a result of maintaining the general property tax at one-half of one per cent. and of the growth in taxable property values.

It has been the theory of the policy of the state to administer the public lands in the interest of the common school fund, and as a result of the sale of school lands the securities of the Permanent School Fund have increased from $3,394,653 in 1879 to $15,-922,760 in 1909. Nothing was derived from the lease of school lands in 1879, but in consequence of a vigorous policy adopted in 1888, receipts from lease grew to be an important item, the maximum being reached in 1900 with $502,128. With the rapid sale of school lands since 1900 receipts from lease have decreased while those on account of interest on land sales have increased, the latter amounting in 1909 to $1,135,047. Increased taxation for common school purposes began in 1884, and whereas only

$635,962 was received in 1879, $3,969,181 was received in 1909.

Since 1893-95, and especially since 1905, the tendency has been manifest to impose upon corporations an increasingly larger share of the burden of supporting the state government. In 1879 special taxes on corporations constituted less than one-tenth of 1 per cent. of the total tax receipts, in 1908, 16 per cent. In 1907 the taxes on the so-called useful occupations were repealed, thus reversing a long-established policy. A graduated collateral inheritance tax, with a comparatively high exemption figure, was adopted in 1907, but as yet it is unproductive. This and the tax on the intangible values of railroads which was adopted in 1905, are the most recent important innovations in the tax system.

State expenditures in their increase have shown a more social character. In 1889 those for education and for charitable and correctional purposes constituted about 68 per cent. of the total; in 1908, about 85 per cent.

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THE STATE FINANCES OF WEST VIRGINIA.

The constitution of West Virginia provides that "no debt shall be contracted by the state, except to meet casual deficits in the revenue, to redeem a pre-

vious liability of the state, to suppress insurrections, to repel invasions or defend the state in time of war." The Virginia debt question which arose with the formation of West Virginia and has been a factor in state politics at various times, is at present before the Supreme Court of the United States.

The receipts of the state government for the year ending 1908 were: $4,007,595.94. The chief sources of income were: state tax, $298,555.42; sheriff's license tax, $533,888.67; railroad and other public service corporation taxes retained by the state, $112,-951.09; license tax on charters, $373,943.64; tax on premiums of insurance companies, $110,937.91; capitation tax, $166,975.96.

All monies received into the West Virginia state treasury are accredited to one of three funds; the state fund, from which all appropriations for state purposes are made; the general school fund, used solely for the support of free schools; and the school fund, which, by a constitutional amendment in 1902, is limited to $1,000,000—all money and interest over this amount being transferred to the general school fund.

The disbursements by the state government for 1908 amounted to $4,251,587.11, distributed chiefly as follows: salaries of principal state executive officers, $27,694.44; salaries of judges of state supreme and circuit courts, $89,607.00; salaries of clerks, $64,-954.59; state militia, $54,336.65; criminal charges, $68,530.03; charities (over half of which was for insane asylums), $499,547.30; state educational institutions, $336,112.42; various state bureaus, boards, geological survey, etc., $124,823.53; legislature (about) $42,855.00; general school fund (including disbursements for institutes, the state department of free schools, uniform examinations, and salaries of county superintendents), $762,270.00.

The disbursement of funds to state institutions—educational, charitable and penal—since July, 1909, has been placed under the direction of a central board of control of three members appointed by the governor. The unused funds are deposited in over sixty banks of the state and draw 3 per cent. interest. The amount spent on state educational institutions, which in 1868 was only one-fourth of the cost of charities, is now nearly two-thirds the cost of charities. The West Virginia University which received from the state $16,186 in 1868 and $9,659 in 1878 and $20,000 in 1888, received $35,550 in 1898 and $124,200 in 1908.

The earliest taxes of the newly-formed state of West Virginia included an income tax, a poll tax, and a general property tax under which railroads were exempted. In February, 1863, the new legislature enacted Virginia's old law providing for the taxation of annual incomes received from all persons, except ministers of the gospel. Under this law many persons were subject both to the license and the income tax until the following December, when the income tax was discontinued. Under both constitutions of West Virginia it has been the duty of the legislature to levy an annual poll tax on all sound male inhabitants who have attained to the age of twenty-one. The rate is one dollar and the receipts are appropriated to the support of free schools.

From the admission of the state until the special session of the legislature in 1904, the tax laws were so framed that the general property tax supplied the principal source of revenue for the state, the rate varying from 30 to 35 cents on the $100 for both general state purposes and free schools. During this period, although the constitution provided that taxation should be equal and uniform throughout the

state, attention was frequently called to the inequalities and injustice of the old tax laws. Governor Jacob B. Jackson in his message to the legislature of 1883 showed that, during the period from 1870 to 1880, the population of the state had increased nearly 40 per cent., but that, according to the assessed value of the personal property and real estate, this immense increase of population had added nothing but rather had detracted from the wealth of the state, which, of course, was not the case. The legislature of that year passed a bill creating the tax commission of 1883. This commission in a number of reports scathingly criticised and condemned the old laws, but its efforts bore no practical fruit, for not until after the appointment of the second tax commission in 1901 and its final report in 1903 was any radical change made. One of the main purposes of the twenty-one tax laws enacted by the legislature in 1904 was to abolish all *ad valorem* taxes on property for state purposes; for, as long as such taxes exist, there is bound to be injustice in taxation because it is impossible to equalize the value of property in fifty-five counties in which there is a great variety of conditions. These new laws did much to remedy this glaring lack of uniformity, at the same time the rate for state purposes was reduced and is now only five cents on the $100 for state purposes and one cent for roads. The property tax for state purposes cannot be entirely abolished until sufficient money can be obtained in other ways to maintain the state institutions. The problem now is to secure some other kind of a tax which will take the place of that on property. A tax on the output of coal mines, gas and oil wells was strongly urged by Governor Glasscock in 1909. The true and actual value of all real and personal property belonging to individuals or corporations (except public service

corporations) within each county is assessed annually by the county assessor and his assistants, who also collect one dollar from each person subject to a capitation tax.

Exemptions from taxation include all federal, state, county, district or town property used for public purposes and all property belonging to religious, charitable or educational institutions. Three men, appointed for six years in each county, form a rotary board for reviewing and equalizing county assessments.

The sheriff, elected for a term of four years and paid in fees and commissions, is the officer of collection of all state, county and district taxes levied in his county.

All public service corporations, including railways, express companies, pipe lines, telegraph and telephone lines, make returns of their property to the board of public works which assesses and reports to the auditor the value of such property. The county court, informed of the value by the auditor, then apportions it among the several districts, after which the county clerk certifies the apportionment to the auditor, together with the amount levied on each $100 for county and district purposes. These corporations pay their tax to the state treasury direct before January 20, and if not, 10 per cent. is added for collection and the sheriff collects. The power to tax privileges and franchises of persons or corporations, which was given to West Virginia for the first time in her constitution of 1872, remained unused for thirteen years. An inadequate law was passed in 1885 from which a very small amount was realized. In 1901 a much more efficient law was passed which regulates the rate according to the authorized capital of the corporation. Under this law the license tax on corporations has become the second most pro-

ductive source of state revenue. This tax in 1908 produced two-fifths as much as it produced for the entire period of the sixteen years during which the old law was in operation. The license tax is the most productive source of revenue for estate purposes. Many of the present license taxes were prescribed by the legislature in its first session in 1863. Additions have since been made until at present there are about twenty-five trades, occupations and privileges requiring a license.

In 1887 the legislature of West Virginia passed an act imposing a collateral inheritance tax of 2½ per cent. property passing to other than direct descendants of the deceased. The receipts from this tax were insignificant because the law failed to prescribe either a definite time within which the tax was to be paid or adequate penalty for delay. These defects were remedied by the law of 1904. The receipts, which were $36.24 in 1888 and $2,506.53 in 1898, increased to $87,966.82 in 1908.

In 1902 the revenues of the state were considerably increased by a constitutional amendment which provided that all fees liable by law for any service performed by state executive officers should revert to the treasury. Prior to this amendment these fees—which in 1908 in the office of the auditor amounted to $36,409.90, and in the office of the secretary of state amounted to $15,269.61—had been retained by the officers.

The legislature in 1904 created the office of state tax commissioner which is filled by appointment of the governor (with and by the advice of the senate) for a term of six years and carries with it the salary of $4,000 a year. It is the duty of the state tax commissioner to report to the governor biennially concerning the operation of the tax laws throughout the state and to suggest such changes in the laws con-

cerning the collection and assessment of taxes as he may think ought to be made.

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THE STATE FINANCES OF VIRGINIA.

THE financial condition of Virginia after the overthrow of the Confederate states was desperate, but for the indomitable spirit of her people. After the destruction of the war of arms, came the blasting curse of Reconstruction, when a war of hostile legislation, of persecution and of humiliation was relentlessly waged upon a helpless and defenseless people.

The conditions cannot be adequately described. They may be best portrayed by illustration. Had England, after four years of heroic resistance to invading armies camped upon her soil, been compelled to lay down her arms and yield to "overwhelming numbers and resources;" had she seen her fields ravaged, homes and fences burned, her livestock consumed or carried off; her implements of husbandry worn out or destroyed; the currency which was the only money of her people become worthless; the work and labor and savings of generations turned to ashes; her merchants bankrupt or driven out of business; her manufacturing com-

panies, and her financial corporations of every kind, including the Bank of England, insolvent; three-eighths of her territory, and that the richest in potential wealth, embracing one-fourth of her white population, wrongfully wrested from her; and in addition to all of this twenty millions of Sepoys injected into her body politic and given the right to vote and hold office, while thousands of her most intelligent, patriotic, and capable citizens were disfranchised,—then the condition of England would have presented some parallel to that of Virginia after the forces of destruction and reconstruction had done their work.

The public debt of the commonwealth during all this time was growing larger from the accumulations of interest. So that notwithstanding such contributions as Virginia in her distress could make to its reduction, that debt, as of July 1, 1871, amounted, principal and interest, to more than $48,000,000.00. Her General Assembly, anxious to honorably meet every obligation of the commonwealth, by the funding Act of March 30, 1871, undertook more than it was prudent to have attempted. There was a large shortage in the revenues to meet the six per cent. interest on over thirty-two millions assumed by that Act.

Unfortunately, the settlement of the debt became thereupon a political issue, and for more than fifteen years the agitation of the question of its adjustment vexed the commonwealth to her very great injury—an injury which, computed in dollars and cents, aggregated more than the entire sum of the debt.

After various abortive efforts to effect an adjustment of the entire debt, a settlement was finally made under the Act of Feb. 20, 1892, which has been accepted by her creditors and faithfully carried out by the state. As a consequence, her bonds bearing

3 per cent. interest, issued under that Act, rank along with like obligations of the foremost states, and command a higher price than English consols, or the like bonds of the most solvent private corporations.

The revival of the prosperity of Virginia began with, or can be traced from, that settlement, until now, seventeen years afterwards, her finances are upon a sounder basis and her people in a more prosperous condition, than at any time in her history; for the restoration of public credit, has been accompanied by a corresponding strengthening of private credit. For this era of unprecedented prosperity very much is also due to the political and social security, and the economic and educational progress assured by the provisions of her constitution adopted in 1902, under which the material and educational interests of Virginia have been advancing almost by leaps and bounds.

The revenue derived by the commonwealth from taxation from year to year during that period, will give some notion of the financial progress of the state between 1865 and 1869. For instance, for the fiscal year 1869-70 that revenue was $1,400,526.92; for 1871-72, $2,030,386.24; for 1891-92, $3,537,006.40; for 1907-08, $5,179,307.93.

This increase was realized in revenue from taxation, notwithstanding a reduction in the rate of taxation, which in 1871-72 was fifty cents, in 1891-92 was forty cents, and in 1907-08 was thirty-five cents on each one hundred dollars of assessed values. The increase in the value of manufactures, of agricultural products, and of banking capital and bank deposits in Virginia during the same period indicate a still more extraordinary advance in wealth and prosperity.

After repeated but unavailing efforts to effect an

amicable settlement with West Virginia, of the portion of the debt of the undivided commonwealth which the new state should pay, suit was instituted by the commonwealth in the Supreme Court of the United States against West Virginia in March, 1906.

Virginia's claim as asserted in that suit, is that West Virginia fairly owes a large part of that debt, which was created with the sanction of the votes of the representatives of West Virginia in the General Assembly of Virginia, and chiefly for building works of internal improvement projected for the ultimate, and in many instances for the immediate, development of West Virginia territory, that Virginia, as at present constituted, has paid off, taken up, and retired, or novated and issued her new obligations for, over $71,000,000.00, as of Jan. 1, 1906, on account of that common indebtedness, and that notwithstanding these facts West Virginia has not paid anything on that account.

West Virginia controverts Virginia's contentions on various grounds, among these; that, very little of the money represented by the original debt of the commonwealth was expended in West Virginia territory; and that by the terms of what is known as the Wheeling Ordinance, adopted in August, 1861, by a convention of West Virginians who undertook to speak for the people of the whole state (as said Ordinance is construed by West Virginia's representatives), *Virginia is in debt to West Virginia.* This suit, which is warmly contested at every stage, is being prepared for final decision in the Supreme Court of the United States.

It will be one of the *causés celebres* of this generation, and its decision will be awaited with great interest.

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sembly of Virginia, *Journals* of the General Assembly, public documents, such as *Reports* of the Auditors of Public Accounts, and of the Second Auditors of Virginia, *Reports* of the Board of Public Works, and *Messages* of the Governors of Virginia, from miscellaneous sources as to the financial history of the state investigated during my seven or eight years connection with the claim against West Virginia for West Virginia's portion of the public debt of Virginia, and running from the Revolutionary period to the present time, which space does not permit to cite in detail.

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THE FINANCES OF OKLAHOMA AND INDIAN TERRITORY.

INDIAN TERRITORY had no general fiscal system, previous to its admission into statehood with Oklahoma Territory, in 1907. It was divided into the Five Indian Nations, namely, the Choctaws, Chickasaws, the Creeks, the Cherokees, and the Seminoles. All tribal funds and lease moneys were originally received and disbursed by the treasurers of each tribe and later, by the Indian Agents, under direction of the Bureau of Indian Affairs. Under old treaties, the allotted lands of the Indians were held in trust by the government, and were not subject to sale or taxation. Hence the only means of revenue for the municipalities were taxes on city real estate and occupation taxes, levied by local ordinances. Public improvements outside of the cities were necessarily constructed and maintained by individual effort and support. The statutes of the state of Arkansas, pertaining to conveyances, corporations, and commercial transactions were extended by Congress to cover Indian Territory.

Old Oklahoma was opened for settlement, by the President's Proclamation, April 22, 1889, under a provisional government, provided by the Organic

Act. On June 6, 1890, Congress created the Territory of Oklahoma, consisting of six counties, and on August 5, 1890, the first territorial legislature convened. As the levies under the revenue laws, enacted by this body, did not operate until the following year, the new territory enjoyed no revenue from taxation during the first two years of its existence. Under the Homestead Laws, real estate filed upon by the settler, was not subject to taxation until final proof of filing had been made to the local land office. This process took a number of years. With a small per cent. of taxable real estate, and suffering from the effects of the nation-wide depression of 1893, which prevented the prompt and full collection of levies, the territory found it a hard task to meet the necessary demands made upon its meagre income. The deficit in current revenues grew from $21,691.86 in 1892 to $290,036.39 in 1899, although the assessed valuation of all property rose from $19,937,400 in 1894 to $42,982,414 in 1899. The increase of current expenses, caused by the wonderful growth of the state and the creation of new institutions of learning and charity, each year outstripped the estimates upon which the levies were based. In 1897 the territorial levy was 4.3 mills. In 1901, this levy had increased to 7.5 mills. This increase was caused almost entirely by the expenses for educational institutions. Bonds in the sum of $48,000 were issued in 1891 for the purpose of construction work on buildings for the State University, State Normal School, and the Agricultural and Mechanical School. This issue was paid from levies for that purpose, in 1904. The high levy rate may be explained by the low basis of valuation, taken by the assessors, which, in many instances, was as low as one-sixth of the actual commercial value of the property.

The territory derived its revenues from an *ad valorem* tax on personal and real property, from fees collected through the several departments, and from the leasing of its school land. This land consisted of 2,055,000 acres, the net rental from which increased from $4,500 in 1891 to $419,000 in 1905.

On Nov. 16, 1907, Oklahoma Territory and Indian Territory were admitted jointly into statehood as the State of Oklahoma. On this date, there was cash in the territorial treasury to the amount of $932,584.88, and warrants, outstanding and unpaid, with a face value of $882,356.76. Of the cash on hand, $574,139.37 was in the Public Building Fund and was not available for the payment of the general current indebtedness. The first legislature of the new state provided for an issue of 4 per cent. bonds, to the amount of $1,460,000, to fund the outstanding warrant indebtedness and other indebtedness of the State of Oklahoma.

Under the Enabling Act, there was appropriated by Congress, $5,000,000 for the use and benefit of the common schools of the state in lieu of Sections 16 and 36 and other lands in Indian Territory. The purpose of this appropriation was to equalize the common school endowment of the two territories. The disposal and investment of this fund has been entirely in the hands of the School Land Commissioners of the State of Oklahoma. The constitution provides that it shall be invested in first mortgages on improved Oklahoma farmland, in Oklahoma State, School District, and County bonds and United States bonds. At the present time a part of this fund is invested in the Oklahoma State bonds, issued in 1908.

The report of the state auditor, for the period from Nov. 16, 1907, to Nov. 30, 1908, shows the revenue from gross revenue tax for corporations to be

$15,796.46; from escheated estates, $236.80; from leasing school lands, $608,192.86, and from all other sources, $214,742.99; making a total of receipts, $2,298,969.11. The total disbursements for the same period were $1,961,586.64. In 1906, the year previous to statehood, Oklahoma Territory had an assessed valuation of $96,625,694. In 1908, the assessed valuation for the new State of Oklahoma was $727,722,516. This enormous increase is explained partly by the additions to the taxable wealth of Indian Territory, but principally by the constitutional provision, which requires that all property, which may be taxed *ad valorem*, shall be assessed at its fair cash value, estimated at the price it would bring at a fair voluntary sale. As heretofore stated, property was assessed in territorial days at a small per cent. of its actual value. The constitution further provides that the total taxes on an *ad valorem* basis, for all purposes, shall not exceed 31½ mills. In the case of counties and school districts, however, the levy may be increased, within certain limits, when authorized by a proper majority at a popular election.

The first legislature passed the following measures for the increase of revenues to the new state: 1. An act providing for the levy of a gross revenue tax from public service corporations and mining, mineral, oil and gas corporations. 2. An act providing for a graduated tax on land holdings in excess of 640 acres, and for a tax on the income and rents from lands held for lease or rental. 3. An act providing for a tax on incomes in excess of $3,500 per annum. 4. An act providing for a tax on gifts, inheritances and legacies.

On account of the great mineral resources and gas and oil production in the state, it is to be expected that the income from the gross revenue tax will add

very materially to the current receipts of the Treasurer.

The state of Oklahoma has an area of 73,280 square miles, a population of over 1,500,000, with a per capita bank deposit of over $50. Oklahoma has the distinction of being the first state in the Union to adopt, and put into operation, a law providing for the guarantee of deposits in state banks.

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3.—Economic Progress and Problems.

THE INFLUENCE OF THE PRESS IN SOUTHERN ECONOMIC DEVELOPMENT.

IN South Carolina, one of the best and most helpful of the agricultural journals published after the close of the war was *The Rural Carolinian* of Charleston. It exerted a marked influence upon those who were engaged in the upbuilding of the wasted fields of this section, and among its contributors were such men as Dr. St. Julien Ravenel and Professor Holmes, through whose active work the phosphate deposits of the coast region of South Carolina were discovered and developed, and the manufacture of commercial fertilizers begun. By the use of these the area devoted to the cultivation of cotton, the chief commercial crop of the South, has

been extended to the very foothills of the mountain ranges, and the least fertile of soils made to yield abundant crops. Within the life of a generation, through the discovery of the phosphate deposits and the manufacture of fertilizers suited to the necessities of all plant life, Charleston has become the largest manufacturing centre of commercial fertilizers in the world, and the yield of the lands in the South have multiplied more than a hundred fold. In *The Rural Carolinian* the newest discoveries in agriculture methods were advertised and advocated, and through this medium the progressive men of South Carolina and other Southern states obtained an audience quick to learn and ready to adopt the scientific methods in farming which promised good returns. It was through this journal that Colonel D. Wyatt Aiken, an old soldier of the Confederacy and a member of Congress from South Carolina, preached the doctrine of hillside ditching or terracing which has resulted in the reclamation of thousands of acres of what is now the most productive agricultural region of the South. The work that was so well done by this capable counsellor of the farmers was done also by such excellent papers as *The Southern Planter* of Georgia, and by other equally effective monthly periodicals or hebdomadals, which have made the best farming in the South an exact science and resulted in the immense increase, not only in the yield of the lands, but in the quality of the crops produced and in the methods of marketing them to the best advantage. In addition to the educating work of the journals especially devoted to the development of agricultural science and farm economy, nearly all the newspapers of the South have given great attention to all subjects affecting the industrial life of the people. Particularly has this been done by the daily press of the

South. In the annual trade reviews they have published, many of them have encouraged agriculture by the expenditure of large sums of money, by offering valuable premiums for adventures in new crops and in the increase of the old or standard crops. Take tobacco-growing in South Carolina, for example. The recreation of this industry was made by the work of *The News and Courier* of Charleston which not only employed expert counsel in the methods of cultivation, but distributed seeds and "instructions" among the farmers of the state with such gratifying results that to-day there is produced in South Carolina a crop of about 50,000,000 pounds of tobacco of superior grade, to the great advantage not only of the farmers who grow the weed but to the state and the South that buy and use it. The influence of the press was also illustrated in South Carolina by the "Hog and Hominy" crusade started by a Charleston daily newspaper which offered large prizes to those who would "raise their own meat," with the result that in the course of one year at least one of the Western pork-packers confessed that his business in South Carolina, through this enterprise, had suffered a loss of three million dollars in its trade. It was demonstrated that it was the wisest economy for the farmers to make their own supplies rather than trust to a market so easily manipulated by outside interests which could control it to their advantage without regard to the necessities of the consumers. What was done in this way by this newspaper was done also by other daily newspapers and weekly newspapers in the South, so that the South is to-day self-supporting and could "live at home" if by any sudden and unfortunate condition it should be entirely cut off from communication with the rest of the world. With its prac-

tically unlimited resources of soil and climate, minerals and textiles, its fruits and vegetables, its railroads and steamships, its well-ordered system of labor, its banking and marketing facilities, all of which have been vastly encouraged and promoted by its press, it is not remarkable that in the things that are worth having the South should attract the confidence and the capital of the world.

There are to-day 182 publications especially devoted to the economic development of the South; sixty-nine papers devoted to agriculture, forty-one to livestock, twenty-three to commerce and finance, sixteen to mercantile and manufacturing interests, fifteen to horticulture and floriculture, seven to drugs and medicines, six to the lumbering industry, four to textile affairs and one to dairying, and in the abundance of such counsel the South is working to the end that its people shall be not only the most progressive, but the most prosperous and contented people in the world.

"The influence of the press in Southern economic development" has been well illustrated in a concrete form in the work which has been done by the *Manufacturers' Record* of Baltimore. It has covered every field of industrial endeavor in the South, and covered it with marvellous success; its preaching having directed to the South the attention of the investing world, so that in the course of a quarter of a century the annual trade of the South in the things that other people want now amounts to more than $5,000,000,000. The influence of this single paper and its value to the South and to the country as well cannot be overestimated. The agriculture of the South, the railroad and water transportation of the South, the cotton mills of the South, the water-powers of the South, the trucking industry of the South, the coal mines of the

South, the iron mines and iron and steel furnaces of the South, the lumber business of the South, the labor conditions in the South—, have all been promoted through the work of this and other publications devoted exclusively to the development of the natural resources of this region. The opinion has obtained, among those who have not taken the trouble to inquire, that the energies of the Southern people have been largely devoted to activity in the political field; but what the South has accomplished in the expansion of its industrial life shows how little truth there is in this view. Just to the extent that political conditions have affected industrial growth has the South been in politics since the war. The task of reconstruction, not the reconstruction directed by the sectional and partisan politicians of thirty-five years ago but the reconstruction of a wasted land, seemed to be superhuman but it has been accomplished through the spirit of the Southern people and chiefly by the genius of its own sons. It has been estimated that in 1860 the true value of the real and personal property in the South was $6,286,214,108; while in 1900 it was $13,863,073,149. In 1906 the assessed value of property in the South was estimated to be $2,824,-859,678 more than in 1860. The recovery of the South from the effects of the war was painfully slow. The true value of Southern property increased between 1860 and 1880 only $1,218,785,892, as compared with an increase of $26,263,598,040 in the rest of the country. Between the years 1880 and 1900 the true value of property in the South increased by $6,358,073,149, and the Census of 1910 will probably show that the true value of property in the South is not less than $40,000,000,000. This immense advance in the wealth of the South has been influenced in large measure by the work of the

press. The daily and weekly newspapers have promoted every effort to develop the unlimited and practically untouched resources of this vast region by advocating the establishment of new and the extension of old industries by the creation of new markets, by the invitation to outside capital, by the encouragement of desirable immigration, by the enactment of reasonable laws, and by the education of a wholesome public sentiment looking to the protection of vested interests. The South has not escaped altogether the blighting work of the demagogue and the industry of the damage suit lawyer; but it has in a healthy degree preserved its business integrity. It will not be denied that the press has in some critical emergencies held the mischief-maker in check and encouraged a saving spirit of reflection in the popular mind.

During the last half century, as stated by Dr. Butterfield, president of the Rhode Island College of Agriculture, there was a gain of 500 per cent. in the value of farm property and an increase of only 250 per cent. in the non-urban or farm population of the country. Agriculture is really the chief occupation of the people of the United States, but it has been hampered and controlled by the perfectly natural disposition of the people of all callings and occupations to live with the least possible exertion, and, at the same time, greatest comfort. The chief difficulty of life on the farm, or life in the country, is its isolation. Much has been done within recent years to improve the condition of the farmers, many organizations have been formed for their improvement, and various educational efforts organized in their interest, the agricultural colleges, the farmers' institutes, and the agricultural or industrial press having contributed materially to the enlargement of the farmers' horizon and to the sub-

stantial gain in the conditions of country life. The theory that the farmer is a citizen as well as a farmer, and that he is an important factor in public affairs has been more and more realized as the country has progressed in its industrial and economic development, and the efforts of those who are interested truly in his welfare have been directed largely to the improvement of the conditions in which he lives and in encouraging his closer and more intimate touch with what is going on in the great world outside of his own little world.

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ECONOMIC STATISTICS IN THE SOUTH.

THE collection of statistical and other information with reference to economic questions has not as yet become a well developed governmental function in any of the Southern states. Certain official publications of these states do contain, however, a considerable and constantly increasing amount of material of great value in the solution of economic and social questions. These publications may be divided into two classes. In the first, the gathering of the information has been the direct object of the inquiries; in the second, the information has been collected incidentally by state officials in the performance of administrative duties.

The publications of the first class include those of (1) statistical bureaus, (2) bureaus of labor, (3) state tax commissions.

(1) In the decade immediately following the war a number of the Southern states, impressed with the desirability of attracting immigrants, established

bureaus for the purpose of collecting and disseminating information concerning the resources of the states. Missouri established such an office in 1865; Maryland, Louisiana, and South Carolina in 1866; Alabama, Florida, Arkansas, Tennessee in 1868; Texas in 1869; Mississippi in 1873; Georgia in 1874; Kentucky in 1876; North Carolina in 1877. Some of these bureaus are still in existence, but most of them were abandoned after a few years. Their reports in practically all cases were mere compilations, for no one of the bureaus was equipped with sufficient funds to gather new information. The chief merit of their publications was that they brought into compact and accessible form a considerable mass of widely scattered material. In a few cases, also, the reports have preserved information which would otherwise have been lost.

(2) Following the example first set by Massachusetts in 1869, eight of the Southern states have established labor bureaus charged with the duty of gathering information concerning the conditions of labor and of making recommendations to the state legislatures. Missouri established such a bureau in 1879, Maryland in 1884, North Carolina in 1887, West Virginia in 1889, Kentucky in 1890, Tennessee in 1891, Virginia in 1898, and Louisiana in 1900. The reports of these bureaus contain and preserve a great deal of information concerning local labor conditions. None of them has, however, carried through any considerable investigation. They are forced, on account of inadequate support, to depend mainly on compilation for the information they supply.

(3) An increasingly important agency of economic inquiry in the United States during the last twenty years has been the State Tax Commission, appointed to inquire into the working of the tax system and to propose needed changes. On account of

the comparatively simple economic structure of the Southern states, questions of taxation have been less perplexing than in the richer states of the North. One result of this is that state tax commissions have not been so numerous nor so important in the South. The report of the Maryland commission in 1888, however, was of a notable character. West Virginia has had two commissions, one in 1884 and a second in 1902. Missouri also has had two commissions, one in 1903 and one in 1907. Heretofore, such commissions have been created only in the border states of the South. With the rapid increase in wealth and with the growth of the corporate form of industry, it is to be expected that similar inquiries will be set on foot in the more typically Southern states.

The second great class of publications issued by the southern states which contain data relating to economic problems consists of the reports of the various bureaus charged with the inspection and regulation of (1) banks, (2) insurance companies and (3) railroads.

(1) The business of banking was for a long time after the war entirely unregulated. More recently, systems of supervision have been gradually built up in nearly all the Southern states. The reports of the officials in charge contain statistical information concerning the banking institutions incorporated under state laws and, in some cases, concerning private banks. Regular reports of state banks have been made in Kentucky since 1870, Missouri, 1878, North Carolina, Mississippi, Florida, and Virginia since 1889, West Virginia since 1897, Louisiana, 1898; Oklahoma, 1901; Texas, 1905; South Carolina, 1906. These reports vary greatly in value, but in recent years large powers have been conferred on the officials in charge, with resultant improvement in their reports.

(2) In nearly all of the Southern states the insurance business is subjected to supervision and regulation. In some states the official in charge is known as the insurance commissioner, while in others the same powers are exercised by the state auditor, treasurer, or comptroller. Insurance companies are required to report to these officials, and the information thus secured is usually embodied in an annual report. Such reports have been issued in Tennessee, Missouri, and Kentucky since 1870; in Maryland since 1872; in West Virginia since 1873; in Florida since 1875; in Texas since 1876; and in Arkansas since 1900.

(3) Practically all of the Southern states vest in some official or board the power to require reports from railroads and usually also from express and telegraph companies. Some of these commissions are purely advisory, while others possess regulatory powers. All of them require the filing of reports by the railroads. Such commissions were created in Missouri in 1875; Virginia in 1877; Kentucky and South Carolina in 1878; Georgia, 1879; Alabama, 1881; Tennessee, 1883; Mississippi, 1886; Florida, 1887; North Carolina and Texas, 1891; Louisiana, 1898; Arkansas, 1899.

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CONTRIBUTIONS OF THE SOUTH TO ECONOMIC THOUGHT AND WRITING.

Since 1865 Southern men have made relatively few contributions in written form to the economic thought of the country. The war and consequent reconstruction seem to have taken away the spirit and life of the people. Men who should have become active teachers and original students along advanced lines have been feeding and clothing themselves and their people. The retired scholar and philosopher, like Edmund Ruffin or George Fitzhugh, has not yet reappeared.

Two of the ante-bellum thinkers and, to a considerable extent, economists, J. D. B. DeBow and Arthur Taylor Bledsoe, continued their work and warnings after the war. DeBow would turn all energies into industrialism; railways, cotton manufactures, direct trade with Europe,—these were his themes, and his *Review,* which continued to appear in New Orleans until 1869, was the organ of this economic agitation. Bledsoe, of the University of Virginia, took up the opposite line of teaching. Though a professor of mathematics, his work for the South was done in connection with the *Southern Review,* the organ of the old order and the ablest opponent of those " New South " leaders who were daily urging rapid exploitation of Southern resources. Bledsoe ridiculed the industrialism of DeBow and deplored the so-called democracy which would make the South only another North. DeBow lived to see the beginning of the Reconstruction and the perverse exploitation which accompanied it; Bledsoe died in 1877 and saw, therefore, the worst of the régime. The ideas for which DeBow stood, rapid development with influx of outside populations,

received a new impetus with the establishment (in 1882) by R. H. Edmonds of the *Manufacturer's Record* for which Edward Ingle is the chief economic writer.

The first great forward step of economic thought and teaching, as well as for all other such subjects, was the opening of the doors of the Johns Hopkins University in 1876. Historical and political science received from the first expert attention. Professor Herbert B. Adams, and Professor Richard T. Ely, the economist, were the moving spirits. Adams established in 1882 "The Johns Hopkins University Studies in Historical and Political Science," a series which has reached the twenty-seventh volume. This collection of learned papers contains the best work in the Southern economic field during the last quarter century. Since the death of Professor Adams in 1901, Professor J. H. Hollander and Associate Professor J. C. Ballagh have emphasized and expanded the work in economics and in economic history both in the university and in the " studies." The tendency in teaching as well as writing at Baltimore has been along historical lines and practical investigation, with little emphasis on abstract theorizing. Professor Hollander has published a number of volumes on the history of railways, finance, and taxation; he was secretary of the Bimetallic Commission of 1897; as the first treasurer of Porto Rico, he devised the revenue system of the Island, and he has directed the financial readjustment of San Domingo's finances. Professor Ballagh's *White Servitude in Virginia, Slavery in Virginia, The Land System,* and *Tariff and Public Lands* deal concretely with economic problems in the old South.

Other noteworthy historical-economic treatises originating at the Johns Hopkins have been *The Tobacco Industry in Virginia since* 1860 by Professor

B. W. Arnold of the Randolph-Macon Woman's College; *Bibliography of Trade Union Publications* and *State Banking in the United States* by Associate Professor Geo. E. Barnett of the Johns Hopkins; *Beneficiary Features of American Trade Unions* by J. B. Kennedy; *Coöperative Schemes in Production and Distribution* by D. R. Randall; *Slavery and Servitude in North Carolina* by Professor J. S. Bassett of Smith College; *Studies in State Taxation,* with particular reference to the Southern states, edited by Professor J. H. Hollander.

This zealous activity at the Johns Hopkins has been to a large extent responsible for the revolution that has been wrought in the economic teaching in Southern colleges of all grades. The University of Virginia from its foundation gave instruction in this subject, but attached the work to the department of moral philosophy or to that of history under Professor George F. Holmes.* Washington College (now Washington and Lee University), Randolph-Macon, the University of South Carolina, and most other Southern schools followed the example of "Virginia." But in the early eighties departments of history and political economy and history and economics began to appear in the annual catalogues; and the university in Baltimore was naturally called upon to supply the teachers. Young men were sent, men who did not feel so keenly the wrongs of the past as their seniors in the faculties, or who, sympathizing fully with them and their tragic history, saw that a new day had dawned. Leaders among these were Stephen B. Weeks, who went to Trinity College in 1892; John S. Bassett who succeeded Weeks; E. W. Sikes of Wake Forest; B. J. Ramage of Sewanee, followed

*See article on Contributions of the South to Economic Thought and Writing in Volume V of this work.

by St. George L. Sioussat; George W. Petrie of the Alabama Polytechnic Institute; and Professor H. L. Moore, a brilliant Southern economist, who went from the Johns Hopkins to Columbia University in 1897.

Contemporary with this movement came other strong men from Yale, Columbia, Harvard, Chicago and the universities of Germany, whose teaching and inspiration likewise became important. One of the first of these was Charles W. Dabney of Goettingen who as President of the University of Tennessee from 1887 taught economics; R. H. Dabney, likewise from Goettingen, became professor of history and economics in the University of Virginia in 1897; F. W. Moore of Yale went to Vanderbilt in 1892; S. C. Mitchell of the University of Chicago did the same kind of work for Richmond College after 1899; and others of no less importance were located at the universities of West Virginia, Arkansas, and Texas, and at Randolph-Macon, Wofford, Emory, and Baylor. Before 1900 economics was thus accorded a second rate rank in all worthy institutions of the South.

But in 1898 Washington and Lee, where William L. Wilson had recently been called as president, established a department of economics and political science in which the former subject received the larger share of attention.* Professor H. Parker Willis of the University of Chicago was placed in charge. A good library was collected and the department took rank at once as the first of its kind in the South unless, possibly, the University of Texas be excepted. Professor Willis, afterwards succeeded by Professor T. K. Urdahl, was also a writer on economic topics for the New York

*William Preston Johnston, during the administration of General Lee, taught economics in connection with history; but the combination was given up in 1874 and moral philosophy and economics were reunited.

papers and he brought out during his residence in Virginia *The History of the Latin Monetary Union* and *Reciprocity,* books which were well received. In 1901 both Tulane University and the University of North Carolina established similar departments, with economics as the major subject. Professor Morton A. Aldrich of Harvard took charge in Tulane, and Professor C. L. Raper was the first occupant of the new chair in "North Carolina." Professor Raper published, in 1906, the first textbook on this subject * that has appeared in the South since the war. In all three of these departments there is much enthusiasm and early promise of significant and original results.

It will be seen that the South has been taking stock since 1880, and that economic forces and influences are now better understood than ever before, unless we except the time of Jefferson and Tucker and Cooper. It was necessary that this work should be historical in character and that the great universities should supply in large measure the trained teachers. Meanwhile the South has been undergoing remarkable changes in industry and agriculture. These changes require a realignment of our intellectual and academic forces, though from all indications the fundamental teachings of the ante-bellum free traders still remain effective and the later work seems rather to be supplementary to the earlier than subversive of it. No great emphasis has, however, been put upon the subject notwithstanding its recognized importance both to the South and to the nation. It may not be too much to close this survey with the hope that with the now steadily increasing endowments of all our colleges some one of them may soon establish an adequately equipped department of eco-

**Principles of Wealth and Welfare,* New York, 1906.

nomics and that in the near future great contributions to the economic thought of the country may come out of the "old South."

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LAND RECLAMATION IN RELATION TO SOUTHERN ECONOMIC DEVELOPMENT.

THERE has been since 1865 a gradual awakening of the public to the comprehension of the fact that the swamp lands of the South are among the greatest of the untouched economic possibilities of the country. This awakening is especially notable of

recent years since the irrigation of arid lands in the West under Federal auspices has become a striking success. It has been asked why, if the West can be so prosperous through bringing water to dry areas, can not the South obtain equal prosperity through taking away the excess water from wet areas whose soil is equally productive, if not more so, than that of the arid region. Drainage congresses, or popular meetings similar in character to the irrigation congresses, have been held and interest aroused in the possibilities of utilizing these great areas, now useless, and serving as breeding ground for noxious insects or reptiles.

When the matter is taken up practically, and consideration is given to ways and means, the first obstacle encountered is the lack of accurate knowledge concerning the location and character of the swamp lands, and the area which drains to them, also of the quantity of water and times when it must be removed. Although these lands are near the oldest settled parts of the United States, yet less is known in a scientific or engineering way about them than is known of the far-distant arid lands. The latter have been systematically surveyed and examined, studies have been made of the available water and of the floods, and more accurate data can be had of some small stream in the state of Colorado than of an important river or creek in Virginia. The result is that when attempts are made to devise a systematic scheme for reclamation of the swamp lands, engineers and investors are confronted by the fact that the plans for disposing of the water rest on uncertainty as to many of the fundamental data.

This uncertainty is being removed in part by work now carried on by the national government in preparing topographic maps which show all ele-

vations of the surface, and in measuring the flow of streams into and out of the marshy areas. In order to show the present status of drainage and the area that has been reclaimed up to the present time, the following brief historical description is given of the work in those states containing the greatest amount of wet land, the facts being obtained from a statement prepared by Robert Follansbee of the United States Geological Survey.

Maryland.—Little or nothing has been done to reclaim the swamps in this state. The state has been entirely mapped topographically, the contoured sheets showing all elevations of surface, the catchment areas of streams and swamps, and all other important details.

Virginia.—The largest, as well as the best known, body of swamp land in Virginia is the Dismal Swamp, located in the southeast portion and extending into North Carolina. Although but little of it has been actually reclaimed (the largest reclaimed area being 800 acres at Wallaceton), as long ago as the Eighteenth century surveys for that purpose were made, as noted on page 577 of Volume V. A drainage survey of a portion of the swamp was made in 1883, but like the earlier attempts nothing tangible resulted therefrom.

West Virginia.—In this state the swamp area is so small that drainage has been insignificant.

North Carolina.—Very little actual work has been done up to the present time. Recently the state turned over to the control of its Geological Survey two swamps aggregating 55,000 acres for the purpose of studying the possibility of their drainage. In September, 1908, a State Drainage Convention was held, and as a result the last session of the legislature enacted a law looking to the drainage of the swamps.

South Carolina.—In 1903 was begun the work of draining the swamps by the Sanitary and Drainage Commission of Charleston County, organized under the state laws. The work has been carried on steadily since that time, with the result that some 75,000 acres have been reclaimed. This work is notable in the history of swamp reclamation because the improvement to health is strikingly shown.

Georgia.—In 1891 surveys were made to drain Okefinokee Swamp, and later construction work was commenced which consisted in cutting a canal to St. Marys River through the sand ridge that bounds the swamp on the east. However, work was abandoned before completion although the drainage of the swamp did not present any serious engineering difficulties, as it lies sufficiently above the outlets of the Suwanee and St. Marys rivers, which head within the area, to afford the required fall for drainage.

Florida.—The first work of drainage, as before stated [see p. 578, Volume V] was attempted about 1770 when the Great Turnbull Swamp, near New Smyrna, Florida, was partially drained by a colony of Minorcans. The canals and ditches are still plainly visible though choked with mud and vegetation. In 1880 Hamilton Disston of Philadelphia, became interested in the swamps of Florida and in the following year organized the Atlantic and Gulf Coast Canal and Okeechobee Land Company. A charter was obtained from the state and the work of reclamation begun. Under the terms of the charter the company received one acre of land for every twenty-five cents expended in draining. In the same year the Disston interests purchased 4,000,000 acres of swamp land from the state for $1,000,000. In the Everglades proper, at

the head of the Caloosahatchee River, twenty-five miles of canals were cut but the work was done in such a manner that very little of the land was reclaimed, nor will the work be of great benefit to any other company undertaking to drain this section of the state at some future time. In the Lake Hart region, 100 miles north of Lake Okeechobee, about twenty miles of canal were excavated and, while the general level of the lakes was lowered, the work was never finished, the drainage company having expended the amount of money it had agreed to. In the Kissimmee district alone, where fifteen miles of canal were dug, was there any marsh land drained and that was subject to overflow every few years. The work of the Disston companies was continued in a desultory way until 1896 when the properties changed hands and the work stopped.

Nothing further was done until the state began the task of cutting canals into the Everglades from the Atlantic Coast near Fort Lauderdale. This work was begun in 1906. A drainage district embracing the greater part of the Everglades was organized and an annual tax of five cents per acre on all land received under the Swamp Lands Act of 1850 was levied. At the present time the work is proceeding steadily but is not sufficiently far advanced for any great portion of the land to actually be drained.

Alabama.—Little is known of attempts at drainage in this state; whatever has been done is on such a small scale as to escape notice.

Mississippi.—In the early eighties the work of protecting the Yazoo Basin from Mississippi overflow was begun on a systematic scale and since that time approximately $23,000,000 have been spent on bringing the levee system up to the standard grade required to withstand the maximum floods. Of

this amount $5,547,000 was spent by the Federal government and the remainder by the two levee districts into which the basin is divided. At the present time this basin is protected from the Mississippi (except for the lower portion where some 400 square miles are subject to backwater due to the uncompleted levee system) but the greater part of the land so protected is too wet for cultivation from lack of interior drainage. In 1908 the entire Yazoo-Mississippi Delta Levee District, which comprises the northern portion of the basin, was organized into the Tallahatchie Drainage District under the state law, and preliminary surveys are being made on a broad and comprehensive scale by the United States Geological Survey cöperating with the Tallahatchie District.

Beside the work in the Yazoo Basin a number of small drainage districts have been organized within the past two or three years to drain swamp and overflow areas in various parts of the state.

Louisiana.—On account of Louisiana's geographical position at the lower end of the Mississippi River, and owing to the fact that such a large proportion of the area of the state lies within the alluvial plain of the Mississippi and Red rivers (with their outlets) the necessity for protecting the extremely fertile bottom lands from overflow was recognized at an early date. Accordingly work was begun on the levee systems necessary to protect the various sections and has been carried on ever since with the result that the greater part of these alluvial lands are protected by 1,424 miles of levee. As in the case of the other states bordering the lower Mississippi, the Federal government has aided materially in the work of levee building. Although the lands are protected from overflow little attention has been paid to the interior drainage, and conse-

quently the greater part of the protected area is too wet for cultivation.

Bordering the Gulf of Mexico and extending inland for miles is a great body of land, comprising some 5,000 square miles, that is at, or a little above, mean Gulf level, and the greater part of it is subject to overflow from extremely high tides. Although this soil was known to be very fertile no successful attempts have been made to reclaim it until recently. About 1886 an attempt was made to reclaim some 12,000 acres in Cameron Parish, but the project was a failure although some $250,000 was spent. This failure was largely due to the use of pumps of insufficient size.

Within the past few years, however, a number of projects, involving directly about 300,000 acres, within a radius of forty miles of New Orleans, have been started and are being pushed at the present time. The work already accomplished indicates that the work will finally be successful.

Texas.—It is only within the last ten years that Texas has become known as an agricultural state, as previous to that time the principal industry was stock raising. As the country became more thickly settled, more and more of the land was brought under cultivation. Then it was found that large areas in the southeast portion of the state and along the various rivers were too wet for agricultural purposes. Accordingly, in the past few years there have been some twelve drainage districts organized within the state. In none of these has the work advanced sufficiently far to afford complete drainage.

Arkansas.—The St. Francis Levee District was created by the state law of 1893 to protect the lower portion of St. Francis Basin in Arkansas from the overflow of the Mississippi. As a result this entire basin has been protected from that river's overflow

at a cost of $5,700,000, of which $2,200,000 was contributed by the Federal government and the remainder by the St. Francis Levee District. But practically nothing has been done toward draining the interior lands, and consequently the greater part of the area is still too wet for cultivation. The greater part of the bottom lands along Arkansas River have been leveed but little drainage has been done, with the same effective result. Within the past two or three years seven drainage districts have been organized under the state laws to improve the drainage of nearly 500,000 acres.

Oklahoma.—In this new state there are extensive areas of overflowed lands along the principal rivers, but little as yet has been done to protect these or drain them.

Missouri.—The great swamp section of this state is that known as the lowlands of southeastern Missouri. Within the past decade many small drainage districts have been organized and many thousands of acres have been partially drained, each district working, for the most part, independently of the others. Not only has the work fallen short of complete reclamation, but it has made drainage conditions worse in northern Arkansas.

In 1908, however, there was organized the Little River Drainage District for the purpose of reclaiming 500,000 acres of land in Little River Basin on a systematic basis. Preliminary surveys are now in progress. This is the first effort to drain the lands on a sufficiently large scale to insure complete success.

Beside the work of interior drainage, a beginning has been made in a levee system that will extend from Commerce to the Arkansas line and entirely exclude the Mississippi floods from the eastern portion of the lowlands.

Kentucky and Tennessee.—In these states the problems of drainage have not been given systematic attention on a considerable scale, excepting possibly along the lowlands touching the Mississippi River.

Conclusion.—It is to be noted from the preceding statements that drainage in the South is still largely in its infancy excepting perhaps in connection with levee work along the larger rivers. The economic importance of the matter is now being so generally appreciated that there can be little question that more systematic work will follow the increase of knowledge of the problem and of the beneficial results which will follow intelligent action. The reclamation of thousands of acres of the most fertile land of the United States, possessing a climate which is highly favorable to crop development, will make possible the use of vast areas and the subdivision of these lands, presumably into plantations or farms of moderate size. The opportunities are such that under wise administration the states should be able to attract a desirable class of settlers upon these reclaimed lands and thus add to their strength in agricultural industries and in conservative citizenship.

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WATER POWER IN THE SOUTH.

At the period beginning with 1865, the water powers of the South in common with other developed resources had suffered great war losses. When industries resumed, the rapid expansion in use of the steam engine and the opening of coal mines brought a rival power which competed sharply with water power in many of its heretofore undisputed fields. The new factories that came into existence were, most of them, soon run by steam power. Saw mills were now practically all steam mills, and even a share of the neighborhood grinding, especially of corn, was done by the small portable farm engine which became so popular about this time.

A comparison of the figures given by the United States Census for 1870, 1880, and 1908, shows that for the early part of the period there was very little increase in the utilized power, while in recent years the progress made in power development has been very rapid. (See table on page following.)

During the years of slow progress in water power development, much of the increase was from enlargements of already established powers. The utilized power at Richmond, Virginia, on the James River and the canal, was estimated at 5,170 horse power in 1880. At the same time the Appomattox River at Petersburg, Virginia, supplied to various mills power aggregating 1,275 horse power. The canal at Augusta, Georgia, was enlarged in 1875, making it capable of supplying water power for at least 10,000 horse power. The actual power in use as late as 1880 was less than 4,000 horse power. At the present time about 12,500 horse power is used. Horse Creek, an important tributary of the Savannah, entering it from the South Carolina side a short

distance below Augusta, furnished, in 1880, power for three cotton factories aggregating 1,200 horse power. The utilized power at Columbus, Georgia, on the Chattahoochee River, had been increased to 2,100 horse power by 1880, and since that time the

TABLE SHOWING THE DEVELOPED WATER POWER IN THE SOUTH FOR 1870, 1880, AND 1908*a*.

(Arranged by states.)

STATES.	1870*b* *Horse Power.*	1880*b* *Horse Power.*	1908*c* *Horse Power.*
Alabama	11,011	11,797	161,694
Arkansas	1,545	2,024	5,868
Florida	528	939	4,539
Georgia	27,417	30,067	166,587
Kentucky	7,640	9,012	14,156
Louisiana	142	90	1,184
Maryland	18,461	18,043	21,715
Mississippi	2,453	3,449	7,922
Missouri	6,644	8,162	10,107
North Carolina	26,211	30,063	162,284
Oklahoma	(.)	(.)	2,994
South Carolina	10,395	13,873	207,242
Tennessee	19,514	18,564	95,060
Texas	1,830	2,508	9,966
Virginia	41,202	37,464	100,123
West Virginia	10,195	9,454	20,500
The South, totals	185,188	195,509	991,941

a—Includes power in process of development.
b—Power in 1870 and 1880 from United States Census of Manufactures, *Bulletin* 88.
c—Power in 1908 from *Report* of the National Conservation Commission, 1909.
The quantity of power shown for 1870 and 1880 probably in most cases represents continuous power for as many hours per day as may be required. In some cases no doubt night water is stored so as to increase the water supply during the day time. For 1908 practically all of the increase is from modern power plants of large size, mostly electric transmission plants. These are usually developed with wheel capacity much greater than can be continuously supplied by the low water flow. Many such plants could not furnish their maximum amount of power more than six hours per day at times of absolute minimum stream flow.

power capacity of the same sites has been enlarged to about 6,000 horse power, which does not include the new plant put in operation in 1902. At Tallassee, Alabama, the Tallassee Falls Manufacturing Company had increased their power a number of times since 1865, and by 1890 were using about 1,500 horse power. A further enlargement of this plant

in 1902 by a new power house on the opposite side of the river added 4,000 horse power, making 5,500 horse power used by the company's mills. Many other powers, from 100 to 1,000 horse power capacity, were established or enlarged between 1865 and 1880.

Although substantial progress in Southern water power development had already been made, due to the increased manufacture of cotton in the South, the first marked advance followed the successful generation and use of electricity for street lighting about 1885, and for street car power about 1890, and the equally successful new idea of electrically transmitted power for all purposes, which had its beginning in the South about 1895. No longer confined to the location of the water fall, nor limited to the stationary class of work, water power now entered into a new field of usefulness almost as broad as any known demands for power, light, or heat.

In 1894 the water power of the Columbia Cotton Mills Company of Columbia, South Carolina, located on the canal taking water from Broad River, was put in operation, transmitting 1,300 horse power electrically to the mills eight hundred feet away. About three years later the power plant of the Columbia Water Power Company, taking its water supply from the canal, was sending its current of 3,000 horse power to various parts of the city of Columbia. Plants of the Columbia Water Works and the Columbia Street Railway Company of 500 horse power each, were located on the same canal. In 1895 the Anderson Water, Light and Power Company of Anderson, South Carolina, was transmitting 200 horse power from the Seneca River, a distance of 10 miles. About two years later the capacity of this plant was increased to 1,500 horse power. In 1896 Mill No. 4 of the

THE YADKIN RESERVOIR DAM DURING PROCESS OF CONSTRUCTION.

Pelzer Manufacturing Company at Pelzer, South Carolina, began to receive about 3,000 horse power from the Saluda River three miles away.

A large power plant which should be mentioned here is the Austin Dam, which was constructed and owned by the city of Austin, Texas. This enormous solid masonry dam across the Colorado River was 1,100 feet long and 60 feet high above the surface of low water. Work of construction began in 1890 and was finished in 1893. The power plant was totally destroyed by failure of the dam during a flood in 1900. Aside from the failure of the dam, due entirely to poor foundation, the enterprise was most disappointing on account of insufficient water supply. It was expected that the minimum flow of the river would produce 14,000 horse power, and the estimated earnings were based on the rental of 12,000 horse power for manufacturing purposes, after reserving 2,000 horse power for the city's use, but there was very little power above the amount required by the city. The minimum flow of the river was less than one-eighth of the estimated amount.

During the year 1895 the United States Geological Survey began its systematic stream gaging in the South. This work makes an accurate continuous record of the flow at any gaging station, covering all stages from the minimum to maximum flow. These records are of very great value to water power investigations, and the fact that they are now available for almost all of the water power streams in the South, has placed Southern water power development upon a solid business-like basis with little of the uncertainty as to results which attended the earlier large developments, and positively removes any excuse for such an error as that committed at Austin. Probably every power of im-

portance developed in the South since 1900 has had its estimated capacity based on these data.

Following the tendency to specialization, the modern hydro-electric power plant is usually owned and operated by a power company for the purpose of selling or leasing its power to manufacturers or others requiring power or its equivalent in light or heat. Thus a variety of consumers of more or less irregular and intermittent power can be better served. Among the Southern hydro-electric power plants in operation or in process of construction since 1900, are: the Columbus, Georgia, Power Company developing 40 feet of fall in the Chattahoochee River with about 10,000 horse power; the Montgomery Light and Water Power Company on the Tallapoosa River near Tallassee, Alabama, with 6,000 horse power and a working head of 36 feet; the Gainesville, Georgia, Electric Railway Company, with 1,500 horse power on Chestatee River eighteen miles away. These three were put in operation in 1902. In 1904 were added the following operating plants: the Atlanta Water and Electric Power Company at the Bull Sluice plant on the Chattahoochee River eighteen miles from Atlanta, Georgia, having 48 feet head developing 15,000 horse power; and the North Georgia Electric Company on the Chattahoochee River near Gainesville, Georgia, having 3,000 horse power with 38 feet of head; and in 1905 the Albany, Georgia, Power and Manufacturing Company on Muckalee Creek developing 3,500 horse power.

The Catawba Plant of the Southern Power Company on Catawba River near Rock Hill, South Carolina, of 10,000 horse power with 28 feet of head, was completed in 1904, and in 1907 the Great Falls Plant of the Southern Power Company on Catawba River, about midway between Rock Hill and Camden, with

72 feet of fall and 30,000 horse power, was completed, as was also the Electric Manufacturing and Power Company at Gaston Shoals on the Broad River near Spartanburg, South Carolina, with 11,000 horse power. The Savannah River Power Company, near Anderson, South Carolina, developing 11 feet of fall on the Savannah River with 3,000 horse power also began operation. The Rocky Creek Plant of the Southern Power Company on the Catawba River a few miles below the Great Falls Plant, of 30,000 horse power with 60 feet of fall, was completed in 1909, and the Ninety-nine Island Plant of the Southern Power Company on Broad River near Gaffney, South Carolina, is now under construction, to develop 12,000 horse power with 72 feet of fall. Other plants being constructed are: the Rockingham Power Company on the Yadkin River near Rockingham, North Carolina, to develop 32,000 horse power; the Whitney Power Company at Whitney, North Carolina, on the Yadkin River, to develop 40,000 horse power; the Chattanooga and Tennessee Power Company now being constructed on the Tennessee River eighteen miles below Chattanooga, to develop 58,000 horse power; and the Central Georgia Power Company, whose dam 100 feet high is now being built near Jackson, Georgia, on the Ocmulgee River, to develop about 22,000 horse power.

Plants of from 3,000 to 6,000 horse power capacity have been put in operation on the Cape Fear River in North Carolina; the Broad and Saluda rivers in South Carolina; the Chattahoochee River in Georgia, and at other places. Smaller developments for the same period are quite numerous, especially in Virginia, the Carolinas, and Georgia.

It should not be inferred that the full capacity of

TABLE SHOWING THE DEVELOPED WATER POWER FOR 1880 AND 1908*a*, AND THE UNDEVELOPED POWER.*b*

(Arranged by river systems.)

Drainage Basins.	Developed Power in 1880*c* *Horse Power.*	Developed Power in 1908*d* *Horse Power.*	Undeveloped Power*e* *Horse Power.*
Middle Atlantic:			
James River.....	13,332	40,173	196,000
Southern Atlantic:			
Chowan River.....	1,954	3,528	5,100
Roanoke River.....	8,426	36,066	205,000
Tar River.....	2,571	6,431	4,000
Neuse River.....	3,250	11,365	5,000
Cape Fear River.....	7,131	27,539	40,000
Yadkin River.....	8,121	58,299	222,000
Santee River.....	12,710	205,736	400,000
Savannah River.....	11,878	59,535	290,000
Ogeechee River.....	816	1,965	4,300
Altamaha River.....	6,727	44,531	57,600
Minor Streams.....	.....	4,657	20,000
Eastern Gulf of Mexico:			
Appalachicola River....	13,009	71,273	204,000
Mobile River:			
Alabama River....	10,269	47,761	275,000
Tombigbee River..	.....	6,290	50,000
Minor Streams.....	2,448	14,434	30,000
Eastern Mississippi River:			
Ohio River—			
Tennessee River....		221,559	1,210,000
Cumberland River...		13,007	76,800
Green River.....		3,774	11,400
Kentucky River....		2,916	18,100
Big Sandy River....		1,505	21,700
Kanawha River.....		22,612	402,000
The South, totals.....	102,642	904,956*f*	3,748,000

a—Power in 1908 includes plants in process of construction.

b—Table of undeveloped power includes the developed portions also. It is therefore total power.

c—Power in 1880 from Tenth United States Census, Water Power.

d—Power in 1908 from Report of the National Conservation Commission, 1909.

e—Undeveloped power from United States Geological Survey Water Supply Paper, No. 234.

f—To the total developed power for 1908 there should be added 49,178 horse power for the Susquehanna and Potomac rivers and the minor streams of the Chesapeake Bay; 6,522 horse power for the Ohio River tributaries not included in the table; 29,208 horse power for the states west of the Mississippi River; and also small amounts of power for other minor drainage basins.

Note.—The total power listed as undeveloped power, is the amount of continuous power for 24 hours per day which can be produced at a stage of stream flow corresponding to the minimum flow for the average year. Twelve hour power for the same stage would be double the amount shown. The absolute minimum stage as observed for dry years has in some cases reduced the minimum power to one-half the amount shown for minimum of the average year.

BUILDING THE YADKIN RESERVOIR.

The largest power dam in the South for supplying power to Cotton Mills in North Carolina.

the recently developed power plants is already in use, or that all of the power in process of development will find a ready market as soon as it is ready for delivery. It should also be understood that the figures given are usually the maximum capacity of the plant, which can only be produced for a portion of the time, usually about twelve hours a day during the minimum stage for the average year, and a correspondingly shorter time during the absolute minimum as observed for dry years.

Other power sites, owned by companies the development of which is practically assured, aggregate a very large amount of power—more, in some of the states at least, than that already developed and in process of development. The demand for power, largely controlled by its price, will of course determine the rapidity with which these powers are developed. The progress in future Southern water power development will therefore depend upon a cost of power production sufficiently low to justify an attractive price to manufacturers.

The table on page 566 shows by river systems the utilized power for 1880, that developed or in process of development in 1908, and the total power which can be developed on the rivers and their important tributaries.

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THE INFLUENCE OF AGRICULTURAL AND INDUSTRIAL FAIRS AND EXPOSITIONS ON THE ECONOMIC DEVELOPMENT OF THE SOUTH SINCE 1865.

Five great expositions have been held in the South since the Civil War,—New Orleans, Atlanta, Nashville, Charleston and Jamestown. They brought together people from remote sections of the United States and not few strangers from abroad. Acquaintance and association thus promoted inspired mutual respect and reciprocal good will. At the same time these expositions imparted valuable knowledge conducive to improved modes of living, promotive not only of material welfare, but of higher standards of life, of happier existence, of deeper patriotic feeling. If these five expositions of the South, and the great expositions of the North with the culminating World's Fair of 1904 on the border between the sections, could have been held before 1861, with the far reaching influence they have had toward better mutual understanding and appreciation by our whole people, Fort Sumter would not have been fired upon. The internecine struggle of four years—the darkest period in our national history—would never have taken place.

Fairs accomplished much for certain parts of the South between 1850 and 1860. They were the exponents of an agricultural and industrial movement which, given time, would have helped materially to solve the slavery problem, possibly would have worked it out, averting physical strife. That movement was, not avowedly but practically, anti-slavery in effect. It meant other labor than slave labor for the basis of Southern progress and prosperity. The decade before the war developed enough of this

movement to show what might have been in the course of two generations. The four years of fighting and twenty years of misunderstanding formed a period of almost total suspension of economic development in this section. Nearly all that the South has gained materially, as compared with the period 1850-1860, has been achieved between 1884 and 1910. Within this period of twenty-five years have been held in Southern States, not only the five large expositions mentioned, but almost numberless fairs and expositions local in character.

The New Orleans Exposition of 1884-85 opened at the beginning of this period. Atlanta followed in 1895. The Tennessee Centennial Exposition was held at Nashville in 1897. The South Carolina and West Indian Exposition was in 1902. The Jamestown Exposition in Virginia came five years later. The Nashville Exposition of 1897 was handicapped by an epidemic raging in a tributary section. But it was successful beyond the most sanguine expectations of its projectors and a new interest was given thereby to the progress and development of Tennessee.

The New Orleans Exposition came at a time when Northern capitalists were looking southward, no longer apprehensive of political disturbance. It was visited by many thousands of Northern people. It was described and commented upon at great length by Northern newspapers. It performed no small part in bringing the South industrially to the attention of the rest of the country. Atlanta and Charleston and Norfolk, as well as their surrounding industrial territory, were benefited economically by their expositions. Manufacturing was stimulated by each of these great exhibitions.

The early fairs and expositions of the ante-bellum South had a direct connection, as is shown

in the case of St. Louis, with these later and greater developments. From local agricultural and mechanical fairs developed a joint agricultural and mechanical association at St. Louis in 1855, which held annual fairs for the entire Southwest with a premium list of $25,000.*

Immediately after the war this annual fair at St. Louis was resumed. It grew to have a premium list of $40,000 a year and an attendance of from 50,000 to 100,000 visitors a day. It was continued more than a third of a century.

In 1883 St. Louis returned to the plan of separation of fair and exposition. With a capital stock of $600,000, the St. Louis Exposition and Music Hall Association was organized. Upon Missouri park, occupying two full city blocks between Olive and St. Charles, Thirteenth and Fourteenth streets, a building specially adapted to exposition purposes was erected. For nearly a score of years the annual exposition and the annual fair were conducted successfully, being suspended only when the movement to celebrate the Centennial of the Louisiana Purchase took definite form. In the first ten years of its existence the receipts of the St. Louis Exposition were over $2,000,000. In its twelfth year the exposition paid a dividend to stockholders and contributed $8,000 to cyclone sufferers. The average yearly attendance was 750,000 visitors.

The industrial and commercial upbuilding of St. Louis is to be attributed to its fairs and expositions more than to any other one agency. Moreover, these fairs and expositions, carried on through five generations of business men, paved the way for the World's Fair of 1904 and made possible its success.

The total installation of the Louisiana Purchase Exposition represented an expenditure of over $45,-

* See article "Southern Agricultural Fairs and Expositions to 1865," Vol. V, p. 591.

000,000. St. Louis, through the city corporation and through subscribing shareholders, contributed $10,000,000. The Federal government appropriated $5,000,000. The Federal government loaned, in addition, $4,600,000, every dollar of which was returned in strict accordance with the act of appropriation. The remainder of the $45,000,000 represented the appropriations of our own states and of foreign countries, and the cost to exhibitors. The Exposition passed into history as the equal, if not the superior, to any held up to this time. We were told that the holding of such an exposition would be ultimately of more injury than benefit to the city; that there would be a reaction which would depress business and depreciate the value of property and make the people regret that they had undertaken such an enterprise. There was no reaction. Prices of real estate the year after the Exposition closed were higher than at any time in ten years preceding and have since steadily advanced. The business of St. Louis—mercantile, jobbing and retail—the year after the Exposition was 25 per cent. greater than the year previous to the Exposition and has been increasing ever since. Industrially St. Louis gained more in new manufactories and in volume of production during the five years succeeding the Exposition than it had in the fifteen years preceding. Nothing ever contributed so much toward bringing the people of St. Louis together and inspiring a consciousness of strength and of mutual confidence as did the World's Fair of 1904.

The influence of the Atlanta Exposition in 1895 was so potent for good that a decade later the Commercial Club of that city held meetings and seriously considered the advisability of attempting an exposition on a still larger scale. In the case of Atlanta, the title indicated the character and purpose of the

bargainer will seek by superior knowledge, organization, skill, and artifice to place himself in such a position that he will have an assured and perpetual advantage in bargaining. While the theory presupposes that either party should be able to withdraw without completing the bargain when he finds the conditions too disadvantageous it also contemplates the possibility of cases arising where the one party has the barest minimum of profit or even must close the bargain without any advantage except the negative one of escape from an impending greater loss. But such cases are assumed to be extreme and exceptional, and to be tolerated only when they are rare. Their frequent and regular occurrence is held to be against public policy. The lack of advantage and the resulting discouragement to the one party would be more serious than could be offset by the additional gain to the other.

Now in view of these theories, what is the situation particularly in respect of trade in those articles which the South produces for sale, and in those also which it uses in the process of production or for ultimate consumption? Is there freedom of trade and free competition with a fair opportunity for both parties to make a gain? Or is there some condition, perpetual or occasional, which puts the one party or the other at a serious disadvantage?

Some men have been audacious enough to attempt now and then to make a corner in cotton or wheat or corn or pork. Not to render the chances of success too hazardous they have seen fit to confine their operations to contracts for delivery in some one given month; and they must be able, if for instance they are buying, to buy so much more than can be delivered within the time limits set by the contract that, having accepted delivery of all that can be offered, they will be in position to force those who have

not delivered to buy of them at monopoly prices in order to deliver at contract prices, or to settle without delivery on terms fixed with equal disregard for the disadvantages placed upon the seller. In order to succeed the manipulator must have a large amount of capital at his disposal and he must enjoy good fortune and exercise no common degree of shrewdness in financing his purchases with the capital he has. Attempts of this kind which proceed far enough to attract attention are in the nature of the case rare; and those which have met with especial success are rarer still. But some have succeeded. In some twenty-five years there have been perhaps four or five remarkable corners. In March, 1904, Sully's attempt to corner cotton failed. The Leiter corner in wheat was in July, 1898. There was a futile attempt made to corner corn for May delivery in 1892. The wheat speculations of "Old Hutch" took place several years earlier.*

After the time limit has been reached and the settlements have been made sales of spots and of futures for other months quickly resume their wonted course, and it is found that most of those who were forced to settle at a disadvantage were the speculators who joined in the dealings because they thought that they knew which side was most likely to win. Except for a few producers and consumers who could not avoid making sales or purchases just at that time the normal course of buying and selling has not been much disturbed beyond what the conditions otherwise would account for.

But sad experience is no sure preventive. After awhile, when the memory of the last corner has become a little dim and a new set of men are plunging into speculation on the great exchanges, some one will be found who will attempt a corner again and

* See *Nation*, Vol. LIV, p. 422; LXVI, p. 470; Vol. XXXVIII, p. 222.

many others will be found who will play into his hands for a while in the hope of later breaking him down, and of profiting by his defeat as he hoped to profit by theirs. Such trading is an excrescence and a parasitic growth on wholesome trade. It is fortunate that it is not often attempted.

Representative of another type is the combination that has been made in respect to cotton bagging. Custom and trade economies have brought it about that the protecting cover for cotton bales is made of a low grade of jute fibre which is to be had only by importation from certain limited fields of production. Some men of designing ambitions have found it practicable by combination to regulate the product of the mills by shutting up some and limiting the output of others. They are able to limit importations to what they need and to monopolize the distribution of the product. It has thus been possible for the sellers to dictate the price to the buyers; and as the cost of the wrapper is such a small item in comparison with the value of the bale which it protects, the trust has been assured a certain and abnormal rate of profit on its investment without provoking rival organizations into existence or forcing the contrivance of a satisfactory and economical substitute for jute. Once in existence, such an organization has the advantage of position. It is drawing a large income while its rivals are incurring expenses in the hope of future successes. But even the strong monopoly cannot maintain itself without effort; and the exertion necessary to fight off the attempts of rivals generally brings, after no very great lapse of time, permanent ruin upon it.

A list of more than 400 trusts and combinations was compiled in May, 1900, and published in the *Congressional Record*.* Some of them were local

* 56th Congress, 1st Sess., pp. 6676 ff.

consolidations of ice-plants, street railways, and similar enterprises. Others handled fish and oysters, and sugar, and other articles of food. Most of them were concerned in the manufacture or the distribution of products of which the South must have its share. Prominent among them were the organizations controlling the manufacture and sale of cotton bagging, the milling of rice, the price of pine lumber, the manufacture of fertilizers, the manufacture of tobacco, and the manufacture of cotton-seed oil.

The monopoly of cotton bagging, cotton yarn, cotton duck (more than twenty mills in the South), and of cotton-seed oil and its products (60 per cent. of the mills), are instances of accessories, products, and by-products which combinations have successfully controlled when the prime industry has proven too immense for manipulation, save for the briefest period, and then with indifferent success.

The economic advantage of the warehouse and the elevator consists in the location on a railroad siding or on a wharf in such a position as to eliminate hauling and to reduce switching charges to the minimum. It is good policy for the transportation lines—and apparently far-sighted public policy also—to refuse location and connections to warehouses and elevators which would increase the capacity much above the local needs, since it would seem to be an injudicious investment of capital and to invite cut-throat and ruinous competition. The next step after location is for certain capitalists to get control by purchase or lease of the warehouses and elevators throughout a considerable region. Even if the railroads do nothing more than show themselves friendly to so large customers as the warehouse and elevator men will be, the farmer has some very plausible reasons for feeling that he has no choice but to sell to the

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combination at its price; and he does not put any confidence in the power of circumstances and the conditions of trade which are beyond his influence to compel warehousemen and elevatormen to give him reasonable rates.

In handling very perishable goods, like fruit and vegetables, the producer feels himself peculiarly at the mercy of the commission men. They are not under his eye nor before the public gaze as the traders on the cotton and wheat exchanges are. It has been charged that they sell to the jobbers and retailers on a falling market for any price that will insure them a commission, and that they sell to themselves on a rising market at prices that will enable them to resell for a profit in addition to their commission. It is not necessary that such transactions should occur often. An instance or two will suffice to impress the producer with the disadvantage at which he may sometimes be forced to conduct his bargaining.

All of these typical instances have been drawn from recent Southern experiences, and others could be added. They can be duplicated out of the present and past experiences of other sections also; so that it must not be understood that they are peculiar to the South. But Southern conditions offer many opportunities of which organizers with shrewdness, capital, and trade knowledge may take advantage to put original producers and ultimate consumers at certain and inevitable disadvantage, reducing their possibilities of gain even to the minimum.

Even when such enterprises overreach themselves and fail, the loss to those who for the time have suffered is very real and often serious. In other cases the natural changes in conditions deprive the monopolists eventually of their former advantage. Legislation and judicial procedure have thus far accomplished little in comparison with what has been

hoped from them and attempted through them. Under menace from the Texas anti-trust laws the system of sales agencies maintained by the International Harvester Company, dissolved: and the railroads were embarrassed what to do. In Texas, Tennessee and Missouri the allies and confederates of the Standard Oil Company were forced to leave the state or to take on a distinctly independent form; and in the former state a heavy fine was assessed besides.

The tobacco growers of the burley district of central Kentucky and of the dark tobacco district of western Kentucky with the adjacent counties of Tennessee have attempted counter organization with some success. The methods, which are generally so bitterly condemned in the commercial companies, have necessarily been those which the growers have had to adopt. There has been the association of growers, the deposit of the crop in the association warehouse, some success in loaning to the depositor on the security of his tobacco, the grading of the tobacco, the fixing of the price, and the negotiating of sales or arrangements for sales. In addition there has been resort to lawless night-riding to enforce respect for the association on such farmers as tried to avoid affiliation with it because of an exaggerated spirit of individualism or of a shrewd calculation that they could make a better bargain on the outside.

Publicity, enforced by governmental inspection, and counter organization, under forms amenable to law, seem to offer greatest possibilities of relief and protection. There is no reason in the nature of the case for discouragement. There is every reason to encourage people to practice those methods of coöperation, organization, and public control that will have a tendency to equalize the conditions under

which they must meet their opponents in the practice of the art of bargaining.

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ECONOMIC EXPERIMENTS IN COÖPERATION SINCE 1865.

THE lack of diversified industry and the small amount of free labor in the South before 1865 was a great hindrance to experiments in coöperation. After the Civil War, however, the situation was more favorable, and a number of movements in the direction of coöperative distribution found strong support. First among these was the Grange, or Patrons of Husbandry, organized in Washington City in 1867. Though stronger in the West, the Grange was well represented in the South, and many coöperative experiments were conducted under its auspices. The Texas Coöperative Association, whose

stock was limited to members of the Grange, was chartered in 1878, and soon became one of the largest cotton receivers at Galveston. For several years it had an annual business of about fifty thousand dollars in direct sales of merchandise to its members through its coöperative stores, which at one time numbered 155. By 1896, however, the Association was moribund.

Of foremost importance in the Southern states was the Farmers' Alliance, an offspring of the Grange movement. The Alliance resulted from the union of the State Farmers' Alliance of Texas, the Farmers' Union of Louisiana, the Agricultural Wheels of Arkansas, Missouri, Kentucky, and Tennessee, and a number of minor organizations. It established numerous coöperative stores and sought to eliminate the profits of the middleman. Its total business in 1890 was estimated at more than $10,000,000, but after 1892 its importance gradually declined.

In 1896 an attempt at St. Louis to create a federation of coöperative associations was unsuccessful, but in 1904, at the same place, was organized the National Coöperative League, with a uniform method of organizing coöperative stores on the Rochdale plan. Since 1896 many Southern colleges, among them the universities of Texas, Missouri, and Tennessee, have established coöperative stores to supply students with goods at low prices. In Georgia coöperation in the form of a fruit growers' exchange has proved very successful. Twenty-three coöperative stores in the Southern states in 1905 reported their capital stock at $264,435 and their sales at $216,856.

The earliest recorded attempt at coöperative manufacturing in the South was a shoe factory established in Baltimore in 1871. There were numerous

experiments in coöperative production in the following decade, when a great stimulus was given to this movement by the Knights of Labor.

A number of isolated experiments deserve special mention. The Woman's Commonwealth, whose members have amassed a considerable fortune by cooperative industry, was founded at Belton, Texas, but in 1901 it removed to Mount Pleasant, D. C., where the members spend their declining years in leisure. The Ruskin Commonwealth was organized in Tennessee in 1894 by the Ruskin Coöperative Association, "on a coöperative basis of industrial brotherhood." After two failures elsewhere the members settled in Ware County, Georgia, where the colony died a slow death. The Coöperative Industrial College, at Milner's Store, Georgia, was an outgrowth of the Ruskin experiment. The Willard Coöperative Colony was established in Cherokee County, North Carolina, in 1895, and survived for about a year. Many of its members then joined the Christian Commonwealth, a communistic settlement organized in Muscogee County, Georgia, in 1896, but disbanding in 1900. At Estero, Florida, in 1894, the Koreshan Unity was founded; the members are engaged in various coöperative industries and turn out much fine cabinet work and other woodwork.

Other experiments were made by the Altruist Company of St. Louis (1868), the Home Employment Company of Long Lane, Missouri (1901), and the Comonwealth of Israel, in Mason County, Texas (1901). In 1901, of the seventeen societies of Shakers in the United States, five were in the South, and a number of the Northern societies own large tracts of land in the Southern states.

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GENERAL SOCIAL CONDITIONS.

IMMIGRATION INTO THE SOUTHERN STATES.

A STUDY of immigration into the Southern states, up to a comparatively recent time, is chiefly a study of negatives. The number of persons from the continent of Europe who went to this part of the United States was so small as to be practically negligible, both in actual numbers and in ratio to the population. The reasons for this lay both in the characteristics of the South and of the immigrants, and they were both social and economic. The chaos of the years 1865-70, when the general stream of immigration was growing rapidly, prevented many of foreign birth from seeking a home in a section where work was so uncertain. Thus a precedent or habit was formed that was very hard to change. Moreover, as affairs settled down to a more normal state, the South did not want foreign immigration, remaining firm in the idea of ante-bellum days that the social structure was built wholly upon negro labor, and upon that alone. The people were proud of their homogeneous population, and felt no desire to introduce alien elements. On the other hand, the German, Irish, and Scandinavians who formed the greater part of the immigration during these years, refused to try life in a new country where not only the climate and the crops were so unfamiliar, but where work must be sought in an unfriendly market, and in competition with an inferior race. Thus the initial burden,

that of the main dependence of the South upon the negro for its labor supply, was permitted to increase and intensify. For in spite of the fact that the negro was free in a legal sense, his labor was yet essentially that of a slave, not merely because his former owners could not readily bring themselves to look upon him as anything but a slave still, but because his own habits of life and stage of civilization had not yet fitted him to be classed as a free laborer, with all the responsibility and ability to meet the competition of his fellows which the term implies. He had never faced the question of starvation as the alternative of work, for his choice in the matter had always been made by his owner, nor had he ever felt the slightest responsibility for the maintenance of a family. He worked at the bidding of another, and the relation of work and food could never have been real to him so long as he was too valuable to be permitted to die of starvation, while any means could be used to get work out of him. Of course this economic consequence would occur as rarely in the thought of his master. The Thirteenth Amendment, while it apparently made the negro a part of the complex Anglo-Saxon civilization by which he was surrounded, in reality changed his status but very little. He no longer had anyone to make his choices for him, and he was cast out into a world to play a game whose laws were completely foreign to either his present or race-consciousness. It was the Master-Employer whose status was really changed, for he found himself face to face with the problem of maintaining his economic life, and with no power of controlling the conditions upon which the economic structure was based. The strong forces of competition, of thrift, of providence, love of family, education, and standards of living were all wanting to the

negro; and when the spur of physical compulsion was removed, there was scarcely an adequate force left. There were various reasons, however, why this very vital question at issue should not have been seen by the dominant class. First, because the lack of labor did not so soon appear. Where the ex-slaves did not come back to their old habits of work and obedience, the impoverished Southern whites bravely took up the labor duties forsaken by the blacks. The more intelligent negroes gradually acquired a glimmering of the meaning of wages; though the tendency to regard the master's property as their own remained even after the change in relations made it legal stealing. The second reason lies in the lack of capital, and the consequent lack of demand for labor, except of the sort that was done upon the plantations as formerly. On such a singular basis grew up the new economic life of the South, with a labor force nominally free, but lacking in all the essentials of self-reliant and deserved liberty.

The free immigrant workman did not care to work at the pace set by the negro, and the Southern employers remained firm in their old belief of the peculiar fitness of the negro for the work of the South. In the course of time, however, two new factors entered. A new generation of negroes grew up whose habits of life had not been formed on the plantation, and who were still temperamentally unfit for the life of free industry, and second, the natural resources of the South began to be more fully recognized and developed. With the entrance of the highly complex industrial type of civilization, came the demand for workmen capable of high degrees of skill, speed, accuracy, and steadiness. The negro was unfit to meet this demand, and the necessity for free white labor was felt. In short, up to nearly the close of the last

century, the South was content with its own labor supply, and did not want immigration, and the possible immigrants could not or would not compete under the industrial conditions shaped for the negro.

Statistics show that in the first decade of the period 1860-1870, the number of foreign-born decreased in the states of Alabama, Georgia, Louisiana, North Carolina, South Carolina, Tennessee, and Virginia, the latter being true even with the figures for West Virginia included, to make the two more nearly comparable. Missouri and Texas were the only states to show a ratio of increase at all proportionate to the increases in the Northern and Western states, Missouri increasing from 160,000 to 222,000, and Texas from 43,000 to 62,000 in the ten years. The other increases were very slight. By 1880 there was but little change. Alabama has lost still more, so have Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, South Carolina, and Tennessee; while Florida, North Carolina, Texas, Virginia, and West Virginia show small gains. A

NUMBER OF PERSONS OF FOREIGN BIRTH IN THE SOUTH, BY CENSUS PERIODS.

STATE.	1850	1860	1870	1880	1890	1900
Alabama	7,509	12,352	9,962	9,734	14,777	14,592
Arkansas	1,471	3,600	5,026	10,350	14,264	14,289
Florida	2,769	3,309	4,967	9,909	22,932	23,832
Georgia	6,488	11,671	11,127	10,564	12,137	12,403
Ind. Territory	....	....	....	....	....	4,858
Kentucky	31,420	59,799	63,398	59,517	54,356	50,249
Louisiana	68,233	80,975	61,827	54,146	49,747	52,903
Maryland	58,209	77,529	83,412	82,808	94,296	93,934
Mississippi	4,788	8,558	11,191	9,209	7,952	7,981
Missouri	76,592	160,541	222,267	211,578	234,869	216,379
N. Carolina	2,581	3,298	3,029	3,742	3,702	4,492
Oklahoma	....	....	....	....	2,740	15,680
S. Carolina	8,707	9,986	8,074	7,686	6,270	5,528
Tennessee	5,653	21,226	19,316	16,702	20,029	17,746
Texas	17,681	43,422	62,411	114,616	152,956	179,357
Virginia	22,935	18,513	13,754	14,696	18,874	19,461
West Virginia	....	16,545	17,091	18,265	18,883	22,451

number of these states were losing more of their native white population than they were gaining from migration from other states or by natural increase.

In 1883 an association was organized at Louisville, under the name of the Southern Immigration Association, which met in convention at Nashville in the following year. It was composed of representatives from the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee, and addresses were made describing the need and possibilities for immigrants. The kind of immigration wanted then, and for a long time thereafter, was not that of laborers, but of capitalists and land-purchasers; for the leaders of the South did not at all contemplate a change in the labor supply; indeed they were disposed to congratulate themselves on their freedom from foreigners. For more than twenty years this remained the attitude of the South towards immigration.

A study of the first ten years of the reports of the Commissioner of Immigration shows the exceedingly small numbers of persons of foreign birth who went to the Southern states as shown by the destinations given. Of course there is some element of fault in this, but it is a fair index of the tendency of immigration towards the South. The numbers are very small and somewhat irregular, though following in the main the general currents of immigration. At about the end of this decade, however, the question of labor began to press for attention. Thirty years before, in a special report of the Bureau of Statistics on Immigration and the opportunities for the immigrants in the Southern states, a writer from South Carolina had foreseen this and urged the advantages of the South for industrial development and labor. Up to 1900, however, immigration had avoided the South. The Southern whites did not

want the foreigner, and the railroads hurried him west, leaving the South with no new influx of labor-force, which was so much needed. Up to 1900 the South had but 620,000 inhabitants of foreign birth, less than 6 per cent. of the total number in the whole country, and it was thought the only crop that could be raised in the South was cotton. The two ideas go together. But about this time new ideas of the possibilities of the region began to be more generally considered than they had been previously, and it was then first felt desirable to interest Eastern capital. In order to start new industries, however, there was necessary an available supply of labor, and the realization that this demand could not be met by the negro brought about a change in the sentiment towards immigration, though still considerable difference of opinion existed as to the kind of immigration needed. Many thought it was only native American agricultural labor, in the form of small independent farmers, others thought it was only immigration from North European countries, with perhaps a little from the North of Italy, that should be permitted to come. The railroads, which desired a denser population, and the mill-owners who wanted hands to run their machines, felt they could follow the example of other sections, and be thankful for any immigration they could get. Northern capital had no patience with the negro. He could not furnish either in quality or quantity the labor necessary to develop the millions of untouched acres of rice, cotton, cane, and tobacco lands, the vast mineral resources, the timber lands, the water-power, and the opportunities for market-gardening on a large scale. Better wages for the negro simply meant less work, for he had no rising standard of living to spur him on to greater efforts. There was also a very real danger that the South would lose possession of its most valued monopoly—

cotton—by this same lack of efficient labor, through the competition of the cheaper and better Asiatic and European workers.

Once the vital necessity of immigration was seen, active steps were soon taken to secure it. At first the chief thought was for immigrants from the North; but, as these could only supply a part of the demand for a denser population, the later policy was to favor all immigration of any and all persons who were healthy and able and willing to work. The agencies for this solicitation and encouragement of immigration have been numerous; state governments, railroads, real estate agents, boards of trade, immigration societies, industrial organizations—all using the most effective and up-to-date means of advertising. The railroads of the South have always done a great deal to promote settlement, maintaining industrial and land departments, publishing maps and pamphlets advertising the opportunities along their lines. These means have been adopted by the state immigration bureaus, as they have been organized, sometimes under the state department of agriculture, sometimes independently. In the rural districts the states are especially desirous of settling a class of small independent farmers, who will do their own work, and dispense with the negro help. In order to do this, much information of interest to prospective settlers is printed and distributed, much of it being written in foreign languages. State agents are sent to expositions with literature describing the resources and opportunities. Florida sends out lists of state lands, with maps of the attractive portions of the state, and lists of possible industries that may bring settlers. Louisiana distributes pamphlets giving free information about the climate, soil, resources, industries, schools and churches, with lists giving prices of six million

acres of land for sale within the borders of the state. Other states employ much the same methods, and most of them also have representatives at New York and in the West to encourage and direct immigration. These state bureaus, although hampered by small appropriations, have been fairly successful.

Some of these states still try to discriminate between the nationalities of the immigrants wanted. South Carolina, clinging to the idea of a homogeneous population, officially encourages only the immigration of white citizens of the United States from the North, Irish, Scotch, Swiss, and French, and others of Saxon origin. The planters and mill owners, on the other hand, want South Europeans to work on the rice and cotton plantations, and in the mills. The settlement plan has been tried by this state, and colonies of Scotch, Canadians, and Germans have been secured. In 1906 a colony of four hundred and seventy-five Belgian weavers and mill operatives were brought to the port of Charleston. However much the states would prefer immigrants from the countries racially akin to the older stocks which settled the United States, the demand for labor to build up Southern industry is too strong to admit of much choice. In New Orleans, for instance, Italians and Poles had to be brought in to take the place of the negro roustabouts on the wharves; and in Texas and Louisiana the same economic necessity has been felt. The reports of the United States Commissioner of Immigration show, year by year, a slowly increasing number of Southern Europeans who give some point in the Southern states as their destination, and, of course, this probably represents but a small number of those who eventually find their way there.

There have been two serious checks to the activity

of the states in this matter; one the working of the Federal contract labor law, the other the result of the conditions described in the first part of this article—the labor system based upon the negro. In 1905 steps were taken in many of the Southern states to actively encourage the immigration of Italians, and many went thither. Very naturally, the Italian government sent out agents to see under what conditions these people were to live. There seem to have been many cases found in which the greed of the employers had far overstepped their common sense; and, instead of treating the Italian as a free laborer, he was held in peonage. Evidence was also collected by the Federal government to the same effect, and the result was a sharp check to the stream of Italians going to the South. The Italian government warned intending immigrants not to go to this section, and the men at the head of affairs saw their schemes for securing an adequate labor supply becoming hopeless failures. The panic of 1907 added to this, and the number since has been very much less.

The net results of this increase of immigration into the South cannot, of course, yet be seen in any full degree. All of the states have received large numbers of farmers from other sections of the Union, and many from Canada and Europe. A good farmer, and his family, has been estimated as worth $1,000 to a state. In the sections where these people have taken hold they have almost revolutionized industry. The wealth and industrial prosperity of the South is increasing rapidly at the pace set by these new comers. The immigrants from Southern Europe, on the other hand, while looked upon with disfavor by some, are as eagerly welcomed by others; and this not merely for the addition they make to the labor-force of the South, but also for the effect

their presence may have upon the much mooted "negro problem." In fact, as one writer says, the burden of solution is now placed upon the negro, who must meet the competition of these white laborers, or meet the fate of the incompetent in the struggle for survival. The Italians who have been employed as farm laborers have proved themselves immeasurably the superiors of the negro. They are ambitious to become owners of small plots of ground themselves, and as renters take much better care of animals, tools, and land than the negro, and are far cleaner in their habits. They will cultivate with a thoroughness that insures the maximum crop from the land, and will prepare it for market earlier and in better condition. They are apt citizens, save their money and invest it—generally in more land—and are anxious to improve their own condition and that of their children. As miners, mill-hands, and laborers in the industries of the cities, they are fast supplanting the negro. They are steady workers, capable of speed and skill, do not damage the machines, and likewise save their money. Their good qualities are fast overcoming the prejudice in the South to the foreign laborer, and people are learning that not only is the climate not inimical to the white workingman, but even more desirable than that of many sections now thickly settled with industrial populations. In some respects, the laborers from Southern and Eastern Europe appear fit to thus reorganize the labor force in the South. They are exceedingly well suited to the climate, whereas men from Northern Europe, though far more competent, might first have to accustom themselves to the new environment. Second, their low standard of living enables them to compete on terms of equality with the negro, until they are able to outstrip him; and third, they have not the same deep-

seated prejudice against working with negroes. Immigrant white labor would form the entering wedge for the further extension of modern industry in the South, and something might possibly be hoped for from the stimulus and example shown the negro, who has hitherto responded to no such spur.

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THE INDUSTRIAL CONDITIONS OF THE TENANT CLASS (WHITE AND BLACK) AS INFLUENCED BY THE MEDICAL CONDITIONS.

RELIABLE vital statistics for the Southern rural districts are lacking, so that in comparing present medical conditions with those prior to 1865 one must rely upon three chief sources of information, namely, (1) scattered articles in medical journals, (2) the memory of older physicians, and (3) theoretical de-

ductions as to what will occur under certain conditions. In view of these premises, no article written on this subject can claim to be free from criticism.

Again, the average person who lives or travels in the South does not visit the rural tenant classes nor does he look for disease. Statements, therefore, from one who has become interested in these tenants and their diseases will not be in harmony with the experience of the average traveler or resident.

That prior to 1860 the sanitary surroundings and the health conditions of the tenant white class were, at least in some districts, as wretched as they are to-day can be safely deduced both from the medical literature and from testimony of various physicians. That the tenant negroes are living under decidedly poorer sanitary surroundings and are in poorer average health than were the slaves is the testimony of every physician interviewed, and this testimony is supported by the self-evident fact that slaves were property too valuable to be permitted to live generally under the insanitary surroundings now noticed as the rule among the average country negroes. An unusually intelligent negro physician recently said: "Before the war the white man took care of us and he knew how to do it; since the war we negroes have had charge of ourselves and we have been going from bad to worse."

In any area in which different races live, complicated medical conditions may be expected to exist. In our South, with the white and the black races, we find both European (or temperate) and African (or tropical) diseases, of which each class has spread to the other race: tuberculosis to the negroes, and malaria, hookworm disease, Cochin-China diarrhea, amebic dysentery, and filariasis to the whites. The well-to-do classes are able to surround themselves with good sanitary conditions, especially in cities,

whereby they escape, to a greater or less extent, the effects of the diseases not only of the opposite, but also of their own, race; but the poorer, namely, the tenant classes of both races living under poor sanitary surroundings have to bear the brunt of the burden of the diseases, not only of their own race, but in addition of those contracted from the other race. Under these circumstances, we must be prepared to find that the Southern tenants, living under anything less than ideal sanitary conditions, are not in such good state of health as are the tenants in other parts of the country where these medical complications do not exist.

That the sanitation surrounding the rural tenants in the South is ideal, probably no one will claim. That in numerous instances it is little better than medieval Europe and frequently no better than that described for the present savage tribes of Africa must be admitted by persons conversant with the facts. For instance, in examining a plantation on which there were sixty white hands, the only privy found on the estate was one reserved for the owner's family; on another plantation there was a settlement of eight negro houses, not one of which had a privy. That these cases are not exceptional is shown by the fact that records of 4,645 farm houses scattered over six of the Southern states show that 55.2 per cent. of these had no privy of any kind. A very high percentage, at least 30 per cent., according to conservative estimates, of the rural schools, and a very much higher percentage of the rural churches, are absolutely devoid of the most elementary toilet facilities.

With the insanitary conditions so prevalent in the South, it need not be surprising that the tenant labor is inefficient and the death rate high. As the sanitary conditions under which the negroes are living

are in general much worse than those for the whites, and as the nourishment of the blacks is so irregular and poor, the present much higher death rate and the low degree of efficiency among the negroes need cause no surprise.

Admitting that the vital statistics of the Twelfth Census (1900) are very far from perfect, the following comparison is worthy of serious consideration: (1) The average negro population for the entire country is 11.6 per cent., the average typhoid death-rate 46.5 deaths per 100,000 inhabitants. (2) Fifteen states * have an average negro population of 34.34 per cent., and an average typhoid death rate of 72.7. (3) Seventeen other states † have an average negro population of 2.48 per cent.,‡ and an average typhoid death rate of 39.25. (4) The eighteen non-negro states § have an average negro population of 0.42 per cent., and an average typhoid death rate of 25.51. (5) The typhoid death rates for the registration area are: white males, 37.4; negro males, 75.3; white females, 27.4; negro females, 56.3.

The popular belief that tuberculosis is rare in the rural districts can not be accepted as applying generally to the South, either for the whites or the blacks.

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* Alabama, Arkansas, Mississippi, Tennessee, District of Columbia, Louisiana, Kentucky, South Carolina, Georgia, Texas, North Carolina, Florida, Virginia, Delaware, Maryland (arranged according to typhoid death rate as given in the Twelfth Census).

† Indian Territory, West Virginia, Indiana, Missouri, Oklahoma, Kansas, Pennsylvania, Ohio, Colorado, Illinois, Arizona, Connecticut, New York, Rhode Island, Massachusetts, New Jersey, Wyoming (arranged according to typhoid death rate as given in the Twelfth Census).

‡ The sixteen states *a* included in "The South in the Building of the Nation" have an average negro population of 31.4 per cent. and an average typhoid death rate of 69.8.

§ New Mexico, California, Washington, Vermont, Maine, Nevada, Michigan, Utah, Oregon, Iowa, Nebraska, Idaho, Minnesota, North Dakota, South Dakota, Wisconsin, Montana, New Hampshire (arranged according to typhoid death rate as given in the Twelfth Census).

a Alabama, Arkansas, Mississippi, Tennessee, Indian Territory, Louisiana, Kentucky, South Carolina, Georgia, Texas, North Carolina, West Virginia, Missouri, Florida, Oklahoma, Virginia, Maryland (arranged according to typhoid death rate as given in the Twelfth Census).

It is impossible to make even a rough estimate of the number of deaths due to the tropical or the African diseases in the rural South, but from present indications an estimate that 30 per cent. of the rural tenants harbor hookworm infection is not excessive.

The general testimony is that the immoral diseases are relatively uncommon among the rural whites (except in certain districts), but excessively common among the rural blacks. In fact, unless some change in this respect develops in the not too distant future, the more generally common of these will soon solve the negro problem.

The habitations of the rural tenants are, as a class (with exceptions, of course) very inferior. Light is valued so little that it is common to find the homes without windows. Were it not for the cracks and chimneys, the ventilation would be even worse than it is now. The people seem to fear night air, and this evil is intensified among the negroes by a more or less wide spread habit of covering the head at night with the bed clothes.

The food varies considerably. I have been with families in a comparatively poor financial condition where the table was fairly good, but in the majority of instances the diet is monotonous, and the food poorly cooked and it is served in a manner which decreases rather than increases the appetite. This point can not be considered as at all peculiar to the South, for the same general conditions are found elsewhere. Still, when we compare a very poor Southern tenant family, white or black, with a very poor family in the West, or in Germany, the fact can not be escaped that with the poor style or even lack of privy on the Southern farms, the fecal pollution of the food through flies is excessive in comparison. This point, however, may be made equally well against some of the smaller hotels.

Having painted the foregoing rather black picture of conditions, let us turn to the outlook for their betterment.

The first point to be made is that we are discussing the *tenants,* namely, persons who live in houses and under sanitary conditions *provided by landlords.* The absence of a privy at 55.2 per cent. of the farm houses tabulated was not due to the ignorance of tenants, but to the thoughtlessness and ignorance of the better educated white landlord. The latter, one of the finest men in the world to meet, would not think of eating at a table with a negro, but it does not seem to occur to him that he and his family daily run the risk of eating negro fecal material carried to their food by flies which have bred and fed in the nearby woods used by his tenants or servants in lieu of a privy. There is a popular idea, more or less widespread among the tenant classes, that a privy is not conducive to health, and the landlord, intelligent as to most matters, fails to see the importance of preventing soil pollution in order to insure better health for his own and his tenants' children. This intelligent man takes it as established that he can not run stock on the same small pasture year after year without having an outbreak of disease (due of course to intense soil pollution), but he forgets to apply the same principle to his tenants. The privy is man's invention which enables him to keep his family year after year on the same restricted premises; a failure to have a sanitary privy means soil pollution and resulting disease. As it is the landlord, rather than the tenant, who provides the house and its annexes, it is on the landlord rather than the tenant that the responsibility must be placed for the present conditions under which so many tenants live.

Given now the privy, would it be used? If a sani-

tary toilet is built, there will be more or less difficulty in inducing the whites, especially the men, to use it; there will be much greater difficulty in inducing the negroes to use it.

Still the outlook is much brighter than at first appears. In case of the tenant whites it should be recalled that the mother is by far the most important member of the family. Once gain her for sanitation (and this is not difficult) and the reform is half completed.

Of the negroes one can not speak so confidently. Admitting that there are many exceptions, still the average negro (especially of the younger generation) whom one meets is so superficial, thoughtless, and undependable, that I am pessimistic as to the outlook. Possibly my fears are ungrounded, but I do fear, nevertheless, that the chaingang will eventually have to be requisitioned as a school in which to teach the rural negro the ordinary decencies of civilized sanitation.

Next to the sanitary privy, I would urge that greater housekeeping conveniences be placed in the tenant homes so that the women may have a less harsh life. The burden on the tenant wife is a severe one—and one unnecessarily intensified by poor health due to insanitary surroundings.

More fresh air, more sunlight, and more cleanliness in the home, combined with a sanitary toilet and better housekeeping facilities would soon so increase the efficiency and reduce the death rate among the tenant class that the labor problem would be solved to a great extent and child-labor, instead of being justified as it is at present as the less of two evils, would to a great extent disappear.

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POPULATION OF THE SOUTH SINCE 1860.

THE enumeration of the population in 1870 was not very thorough in the South, because of conditions following the war, and this deficiency was later estimated to represent a total of 1,260,078 persons—747,915 whites and 512,163 negroes. Using the corrected figures for 1870, the statistics of the white and negro population of the South at each of the last four censuses are as follows:

YEAR.	WHITE AND NEGRO POPULATION * OF SOUTH.				PER CENT. OF WHOLE NUMBER IN U. S.		
	Total.	White.	Negro.	Per cent. Negro of Total.	Total.	White.	Negro.
1870†	15,008,618	10,023,771	4,984,847	33.2	37.8	29.2	92.4
1880	18,353,302	12,340,087	6,013,215	32.8	36.7	28.4	91.4
1890	22,233,953	15,427,150	6,806,803	30.6	35.5	28.0	90.9
1900	27,088,108	19,121,304	7,966,804	29.4	35.8	28.6	90.2

* Since 1860 the Federal census has included Chinese, Japanese, and Indians, but as the number so reported is small, particularly in the South, they are not here considered.

† Corrected figures. See census of 1890: Population, Part I, p. xii.

In brief, these figures indicate for the South a relative loss in the proportion of whites from 1860 to 1890 of 1.5 per cent., with a slightly increased proportion for 1900, and a relative loss in the propor-

tion of negroes from 1860 to 1900 of very nearly 4 per cent. This is a marked difference as compared with the equivalent statistics for the earlier census period—a relative loss for whites of nearly 10 per cent. and a relative gain for negroes of nearly 5 per cent.—and is indicative of the probability, as time goes on, of a material increase in the relative strength of the white population of the South and a considerable diminution in that of the negro population.

The population of the South to-day is almost wholly of native origin, and its foreign born element, although at all times small, constituted in 1900 an even smaller proportion than at any preceding census, whether measured with respect to either the total population of the South or to the number of foreign born in the country as a whole. The statistics for the last four censuses follow:

Year.	Foreign born in South.	Per Cent. of:	
		Total Population of South.	Total Foreign Born in U. S.
1870	596,852	4.0*	10.7*
1880	633,520	3.5	9.5
1890	733,297	3.3	7.9
1900	756,135	2.8	7.3

*Based on corrected figures.

From 1860 to 1900 the immigrants to this country numbered 14,061,192 and, with those who came during the earlier years, represent a grand total to 1900 of 19,115,221; but only a very limited amount of this great body of immigration has been attracted to the South. Its white population is very largely of native stock, fully seven-eighths of the entire number of whites in the South, as returned in both 1890 and 1900, being of native parentage, counting but a

single generation back, while the native born were only about one-half for the remainder of the country.

The negro population, which just before the war had become very greatly concentrated in the South, has since 1860 shown a reverse tendency, those outside of the South in 1900 constituting very nearly 10 per cent. of the entire number, as against not quite 6 per cent. in 1860. The number and per cent. outside of the South at each census since 1860 were: 1870—407,325, or 7.6 per cent.; 1880—567,578, or 8.6 per cent.; 1890—681,873, or 9.1 per cent.; 1900—867,190, or 9.8 per cent.

For each decade from 1860 to 1890, as for all preceding decades, the rate of increase in the population of the South was somewhat less than that for the remainder of the country, but from 1890 to 1900, for the first time in its history, the proportional increase was slightly larger. Since 1860, as for each decade from 1830 forward, the relative increase in the white population has been greater than for the negro population, as the following statement shows:

Period.	Per Cent. of Increase in:							
	Total Population.			White Population.			Negro Population.	
	The U. S.	The South.	Rem. of Country	The U. S.	The South.	Rem. of Country	The U. S.	The South.
1860–1870*	26.6	23.8	28.4	27.5	26.1	28.1	21.4	19.3
1870–1880*	26.0	22.3	28.2	26.4	23.1	27.8	22.0	20.6
1880–1890	24.9	20.4	27.4	26.9	25.0	27.7	13.8	13.2
1890–1900	20.7	21.8	20.1	21.2	23.9	20.2	18.0	17.0

*Based on corrected figures for 1870.

The growth of population in the South since 1860, as for the earlier censuses, has been almost wholly due to natural increase, but the native population, both white and negro, has been very considerably shifted through the processes of interstate migration, as the following statement for 1900 indicates:

Section.	Given to:		Received from:		Net Gain (+) or Loss (—).	
	The South.	Rem. of Country.	The South.	Rem. of Country.	The South.	Rem. of Country.
Native White.						
The South.....	2,360,079	1,288,924	2,360,079	1,337,085	.....	+48,161
Atlantic* (exc. Fla.)..	723,790	449,412	303,237	211,708	—420,553	—237,704
" (Fla.).....	18,909	5,990	70,242	21,374	+51,333	+15,384
Gulf (Ala., Miss.)	437,536	27,242	233,536	27,638	—204,000	+396
(La., Texas).....	196,976	64,391	704,936	111,282	+507,960	+46,891
Interior (Ky., Tenn.).	602,849	317,194	242,971	132,149	—359,878	—185,045
" (Ark.,Okla.,Mo.)	380,019	424,695	805,157	832,934	+425,138	+408,239
Native Negro.						
The South.....	868,668	381,522	868,668	28,957	.....	—352,565
Atlantic* (exc. Fla.)..	435,797	246,468	170,406	8,739	—265,391	—237,729
" (Fla.).....	9,787	1,838	67,657	545	+57,870	—1,293
Gulf† (exc. Ala.).....	169,704	15,059	280,042	3,746	+110,338	—11,313
" (Ala.).....	112,277	7,812	71,802	592	—40,475	—7,220
Interior (Ky., Tenn.).	105,845	81,979	93,526	4,109	—12,319	—77,870
" (Ark.,Okla.,Mo.)	35,258	28,366	185,235	11,226	+149,977	—17,140

* Md., Va., N. C., S. C., and Ga. † Miss., La., and Tex.

The movement of the native white population within the South, as shown by these statistics, represents the net exchange of very nearly a million (984,431) persons, given by the older Atlantic and Interior states and by Alabama and Mississippi to those to the west and south, Texas and Oklahoma being the most largely benefited. Arkansas, Texas, Oklahoma, and Missouri—the two latter particularly—have also received material contributions from natives of the country outside the South, but these have been largely offset by contributions to the remainder of the country by the older Southern states, so that the South as a whole has not netted many native immigrants from beyond its borders.

The native negro element of the older Atlantic states has contributed not only very liberally of its numbers to the other states of the South, but substantially an equal number to the remainder of the country. A small net contribution to the native negro population of other Southern states has also been received from Alabama, Kentucky and Tennes-

see, while all the states of the South, except Oklahoma, have given of their native negro element, in varying numbers, to the rest of the country. This represents, with the contributions by the older Atlantic states, in the one case, a net movement within the South of 318,185 native negroes, and, in the other, a net movement out of the South of a somewhat larger number—352,565.

This shifting of the native population of the South, and the filling up of the states to the west and south, has had a very material effect upon the regional distribution of its population at the different census periods, as the following table shows:

Year.	Atlantic States.			Gulf States.			Interior States.		
	Total.*	Negro.		Total.*	Negro.		Total.*	Negro.	
		Number.	Per Cent. of Total.		Number.	Per Cent. of Total.		Number.	Per Cent. of Total.
1870†.	6,251,289	2,407,847	38.5	3,734,442	1,698,612	45.5	5,022,887	878,388	17.5
1880..	7,271,110	2,855,164	39.3	4,921,207	2,127,433	43.2	6,160,985	1,030,618	16.7
1890..	8,456,120	3,158,732	37.4	6,151,311	2,468,412	40.1	7,626,522	1,179,659	15.4
1900..	9,972,167	3,611,618	36.2	7,805,096	3,006,463	38.5	9,310,845	1,348,723	14.5

* Exclusive of Chinese, Japanese, and Indians. † Corrected figures.

Of the total population of the South in 1900, the Atlantic states contained 36.8 per cent., the Gulf states 28.8 per cent., and the Interior states 34.4 per cent.; or, as compared with 1860, a relative loss for the Atlantic states of 5.9 per cent. and a relative gain for the other two groups of 3.5 and 2.4 per cent., respectively. The change in the proportional distribution of the white population since 1860 is very similar—a relative loss for the Atlantic states of 6.4 and relative gains for the other divisions of 4.2 and 2.2 per cent., respectively. But for the negro population there has been a relative loss since 1860 for both the Atlantic and Interior states—3.1 and 1 per cent., respectively—with a corresponding rela-

tive gain for the Gulf states. These facts emphasize the general southwestward trend within the South of both the white and negro population.

In both the Atlantic and Gulf States the negro represents a very considerable proportion of the total population—in each group between one-third and two-fifths in 1900. In two states—Mississippi and South Carolina—this element constituted in 1900 fully 58 per cent. of the total population and in three others—Louisiana, Georgia, and Alabama—between 45 and 50 per cent. These five states together contained at that census 4,202,875 negroes, or very nearly one-half the entire number in the United States.

The population of the South is mainly rural, more than four-fifths being reported as living in country districts in 1900, and the occupations of the people are still largely agricultural. In 1900 there were 10,131,741 persons, representing 37.3 per cent. of its total population, who were gainfully occupied. Of this number very nearly three-fifths were engaged in agricultural pursuits as against less than one-fourth for the remainder of the country. The distribution by main classes in 1900 was as follows:

Class of Occupation.	Persons Gainfully Occupied in the South.						Total Persons Gainfully Occupied in Remainder of Country.	
	Total.		White.		Negro.			
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
All occupations.	10,131,741	100.0	6,552,953	100.0	3,556,124	100.0	18,941,492	100.0
Agricultural pursuits.....	5,776,189	57.0	3,653,228	55.8	2,107,016	59.3	4,605,576	24.3
Professional service.....	310,788	3.1	272,766	4.2	37,496	1.1	947,750	5.0
Domestic and personal serv.	1,716,250	16.9	683,035	10.4	1,028,424	28.9	3,864,407	20.4
Trade and transportation . .	1,044,900	10.3	886,058	13.5	157,873	4.4	3,722,064	19.7
Mfg. and mech. pursuits.....	1,283,614	12.7	1,057,866	16.1	225,315	6.3	5,801,695	30.6

For both the South and the remainder of the country, because of the indefiniteness of the returns, a large number of persons are classified as "laborers not specified" and included under the head of "Domestic and personal service," but a very considerable proportion of these, particularly in the South, undoubtedly belong to the agricultural class. Making allowance for this inaccuracy in the census returns, it is probably true that in the South in 1900 somewhat more than 60 per cent. of all the gainful workers were engaged in agricultural pursuits—as against very nearly 90 per cent. in 1840—and that of all the negroes at work in 1900 fully 70 per cent. were so occupied.

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ECONOMIC ASPECTS OF THE GROWTH OF SOUTHERN TOWNS AND CITIES.

ROUGHLY contemporaneous with slavery, four types of urban communities flourished at the South: (1) Seaports and river ports; (2) State Capitals; (3) County seats, which in Virginia and South Carolina frequently had the suffix "court house" attached to their names, and (4) rural hamlets, where various forms of manufacturing were often conducted and under highly successful conditions. Then as now, however, by far the majority of both races dwelt in the country, agriculture absorbing their energies, as well as shaping their character and destiny. Accordingly, the phenomenon of rapid South-

ern urban development in the past thirty years is one of the most significant and far-reaching results of the Civil War. The initial steps in this transformation of social life embraced the overthrow of slavery, the subdivision of plantations and the influx of whites and blacks into neighboring towns. A second stage was the introduction of northern capital. This began in about the year 1880, or shortly after the downfall of those corrupt local-governments which had plagued the Southern people throughout the Reconstruction era.

A direct outcome of the stream of capital that began to pour into the South with the reëstablishment of law and order was the adoption of modern methods of production and transportation, which have everywhere promoted the growth in the size and number of towns. Naturally, the most advantageously situated of the several classes of existing communities started upon new careers when various manufacturing plants began there to utilize raw material which had formerly been sent north or to Europe and reshipped in its finished form to the point of origin. Thus the South has become less dependent upon the rest of the world, either as a buyer or seller, rapidly extending its activities as new industries—such as those connected with the discovery of phosphate rock, cotton-seed oil, and petroleum—are successively developed. Meanwhile, new communities, rivalling many of the historic ones, sprang into life among the tobacco and cotton fields, in the mining regions, and as distributing points on the lines of the great railway systems that were peopling the Southwest.

The railroads, like every other industry, had felt the disintegrating effects of war, and after a period of active competition underwent various processes of consolidation throughout the South by means of

which numerous short-line, independent and poorly equipped roads were knit into organized systems. These highways now penetrate all the important areas of production, connecting them with the rising municipalities of the South, and the populous cities of the North and West.

These Southern towns now possess improvements unknown to former generations. With new systems of sewerage, paving, and water distribution those epidemics of yellow fever and cholera which were the scourges of the past have practically disappeared. Systems of gas and electric lighting, trolley cars, telegraph and telephone lines, together with an increase in the number of banks and of industrial and public service corporations, reflect everywhere a general civic economic advance. Along with this progress have come public parks, hospitals, almshouses, markets, schools, boards of health, and fire and police departments, all of which have naturally operated to increase municipal taxation and debts. The many new avenues of employment that have been developed in these towns serve largely to counteract emigration which was a constant drain upon the population in years gone by. There is thus a constant urban indraught of the native rural element of both races, forming the bulk of the inhabitants of all Southern towns, and this has brought about much legislation, state and municipal, with respect to conditions arising from the altered state of society.

How far the development of Southern towns has been affected by these new conditions may be indicated in some measure by a brief reference to statistics of population. It is estimated that between 1880 and 1900 the proportion of urban population rose in the South Atlantic states from one-eighth to one-sixth, and in the Southwest from one-thirteenth to one-tenth of the entire population. The census of

1900 included thirty Southern cities with a population each of at least 25,000 and about four hundred places with a population each of at least 2,500. In the same year the figures showed that fourteen Southern states included more than fifty-three towns numbering each a population varying from 4,000 to 8,000, twenty-three having more than 30,000 inhabitants, eight with a population exceeding 50,000, and four whose population surpassed 100,000. Five cities classed herein as Southern had each in 1900 a population which was greater than 200,000. These were St. Louis, Baltimore, New Orleans, Washington, and Louisville. The nationalization of the South is largely the outgrowth of its municipalization.

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EMIGRATION FROM THE SOUTH TO THE NORTH AND WEST.

In spite of the continued economic depression occasioned by the ravages of the war, the overthrow of an industrial system, and the turmoil of the Reconstruction, the people of the South migrated to other regions in relatively smaller numbers in the years

following the war than in the years preceding it. The free population of Southern birth numbered 8,160,000 in 1860. Of these 732,000, or 9 per cent., were living in the North and West. In 1880 the total white population of Southern birth numbered 12,085,000, of whom 927,000, or 8 per cent., were in the North and West. This relative diminution in Southern emigration has continued through the later and more prosperous decades. In 1900 there were 1,270,000 white persons of Southern birth in the North and West, constituting 7 per cent. of the 18,550,000 in the United States. The following table shows these facts in more detail, as a distinction is made in it between the "Eastern South" (South of the Mason and Dixon Line and the Ohio river and east of the Mississippi) and the "Western South" (Missouri, Arkansas, Oklahoma, Louisiana, and Texas). It will be noted that emigration from the Western South has been increasing, both absolutely and relatively.

MIGRATION OF WHITE POPULATION OF SOUTHERN BIRTH.

	1860		1880		1900	
	Number (thsnds).	Per Cent.	Number (thsnds).	Per Cent.	Number (thsnds).	Per Cent.
Born in Eastern South and living in:						
United States.....	7,046	100	9,247	100	12,724	100
Eastern South.....	5,724	82	7,749	84	10,939	86
Western South.....	666	9	804	9	1,000	8
North and West....	656	9	694	7	785	6
Born in Western South and living in:						
United States.....	1,114	100	2,838	100	5,826	100
Eastern South.....	16	1	32	1	67	1
Western South.....	1,022	92	2,573	91	5,272	91
North and West....	76	7	233	8	487	8

Of more significance than the changes in the amount of Southern migration are the changes in its objective points. The states north and west of the Ohio River and east of the Mississippi contained fewer persons of Southern birth in 1900 than in 1860. The North Atlantic states, on the other hand, have in recent years drawn migrants from the South Atlantic states in increasing, though relatively small

numbers. These and other facts are shown in the following table:

DISTRIBUTION OF SOUTHERN EMIGRANTS IN THE NORTH AND WEST.*

Residence.	1860		1900	
	Born in Eastern South.	Born in Western South.	Born in Eastern South.	Born in Western South.
New England	7,574	690	17,317	4,243
Per Cent. of Native White Population.	0.3	—	0.4	0.1
Per Cent. of Native White Immigrants	9.6	0.9	5.9	1.4
Southern North Atlantic States	70,032	2,493	168,785	18,068
Per Cent. of Native White Population.	1.2	—	1.4	0.2
Per Cent. of Native White Immigrants	22.1	0.8	28.6	3.1
Eastern North Central States	468,367	20,922	350,138	103,967
Per Cent. of Native White Population.	8.2	0.4	2.7	0.8
Per Cent. of Native White Immigrants	28.0	1.3	22.9	6.8
Western North Central States	68,900	25,070	131,085	179,178
Per Cent. of Native White Population.	8.6	3.1	2.3	3.1
Per Cent. of Native White Immigrants	12.6	4.6	7.1	9.7
Rocky Mountain States	5,351	4,200	41,950	76,102
Per Cent. of Native White Population.	4.5	3.5	4.3	7.8
Per Cent. of Native White Immigrants	16.1	12.6	7.6	13.8
Basin and Plateau States	2,001	1,125	9,095	12,744
Per Cent. of Native White Population.	6.2	3.5	2.9	4.0
Per Cent. of Native White Immigrants	12.5	7.0	10.1	14.3
Pacific States	33,396	26,026	67,636	92,543
Per Cent. of Native White Population.	11.6	9.1	3.7	5.1
Per Cent. of Native White Immigrants	17.7	13.8	8.2	11.2

* The Southern North Atlantic States include New York, Pennsylvania and New Jersey; the Eastern North Central—Ohio, Indiana, Illinois, Michigan, Wisconsin; the Western North Central—Minnesota, Iowa, the Dakotas, Nebraska, Kansas; the Rocky Mountain—Montana, Idaho, Wyoming, Colorado, New Mexico; and the Basin and Plateau—Arizona, Utah, Nevada. This classification differs from the one followed by the federal census, which counts Missouri in the Western North Central division. The figures for 1860 relate to the total free population.

Worthy of special note are the migration of Southern men to the new mining regions of the Rocky Mountains in the decade between 1870 and 1880, and the continued, although relatively diminishing movement to the Pacific Coast. By far the most important migration of Southern people in this period, however, has been from the states east of the Mississippi to the cotton-growing states west of that river. Of the native white population of Louisiana, Arkansas, Indian Territory and Oklahoma, and Texas in 1900, nearly 800,000, comprising 17 per cent. of the total native white population, or 56 per

cent. of the native white immigrants in the population, had been born in the older South.

The changes in the migration from the South to the North indicate that since the passing of the frontier, the opportunities in the North most attractive to Southern men have been found in the industrial and business regions. It is significant that while less than 10 per cent. of the native Southerners residing in the South in 1900 lived in cities of 25,000 inhabitants or more, over one-fourth of those who had migrated to the North and West lived in such cities.

Southern-born negroes have migrated to the North in fewer numbers than Southern-born whites. Of 8,443,000 colored persons* of Southern birth in the United States in 1900, only 4 per cent. were in the North and West. Twenty years earlier there were 6,280,000 colored persons of Southern birth, of whom 3 per cent. were in the North. A large proportion of the northern migration of negroes is into the Northern border states east of the Mississippi. They have congregated in Northern cities, however, in relatively much greater numbers than have Southern-born white persons. Cities of 25,000 or more inhabitants contained 58 per cent. of the negroes of Southern birth who were in the North in 1900. The following table shows the more important changes in the migration of Southern negroes:

MIGRATION OF COLORED POPULATION OF SOUTHERN BIRTH.

	1880		1900	
	Number (thsnds).	Per Cent.	Number (thsnds).	Per Cent.
Born in Eastern South	5,284	100.0	6,762	100.0
Living in Eastern South	4,832	91.5	6,175	91.3
" " Western South	287	5.4	281	4.2
" " North and West	165	165	306	4.5
Born in Western South	984	100.0	1,681	100.0
Living in Eastern South	16	1.6	32	1.9
" " Western South	945	96.0	1,614	96.0
" " North and West	23	2.4	35	2.1

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* Mostly negroes, but including a few Indians.

be used with caution, on account of the deficiencies in the enumeration of the Southern population in that year. Especially useful is a volume of the Twelfth Census (1900), entitled "Supplementary Analysis and Derivative Tables," pp. 276-327 and 850-1067.

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THE ACCUMULATION OF WEALTH IN THE SOUTH SINCE 1865.

THE war mortgaged heavily the future even of the people of the North. But upon the individual living in that section it put a minimum of burden. True, taxes were heavy and a great debt was assumed. But the generation then living was called upon to do little more than meet the interest. Government bonds also and currency sank quite low at one time, but, without ever ceasing to pass frequently by purchase and exchange, they rose again; so that the loss was largely recovered by the same people who had suffered it and was at any rate widely distributed. No man's property was taken without compensation and business did not cease, even though in some branches it suffered seriously.

But in the South the situation was very different. Production was seriously shortened and in places stopped altogether by the conditions. The borrowings abroad did not diminish perceptibly the burden of the war upon the people of the South. The lessened annual product was exhausted. The stores of capital were depleted. Much was used up in making war; much more in wasteful use, neglect, and wanton destruction. Even the evidences of governmental debt issued in exchange for some portions of it sank continuously in the hands of successive holders; and at last all that had not already become

worthless was repudiated under pressure from the Federal Government. So the individual in the South, in this particular so much less fortunate than his brother of the North, did not have in the form of government currency and bonds any mortgage on future industry to pledge as security for the capital necessarily borrowed to take up production again.

The war spared the negro more than any other form of person or property. The immediate and uncompensated emancipation of the slaves did not greatly or permanently reduce the labor supply numerically. But it did depreciate its efficiency, which was demonstrably less under the regime of freedom and voluntary contract than under the discipline of slavery. Besides it deprived the former owner of another asset. What he must borrow for stock, tools, seed, and provisions for the season must be obtained with other security or not obtained at all. Thus helpless was the Southerner to take advantage of peace when it came. For war had not, after all, sensibly diminished the productivity of the soil and there was instantaneous demand for the products of Southern farms. While many individuals were unable to recover from their losses, the section as a whole had recovered before 1880 and was wealthier than ever before.

One source of the new accumulation of wealth was the increased utilization of nature's resources. There were improved methods of culture, the use of fertilizers, and of more capital in many other forms. There were new crops (grasses, fruits, vegetables); new uses for what before had been refuse (like the cotton seed); and there were more acres in cultivation. Quarries of granite, marble, and limestone furnished building material. The phosphate deposits and the beds of coal and iron—all but unknown comparatively before—were opened up. The

forests ceased to be obstacles to cultivation and became valuable for their lumber. Latest of these developments were the waterpowers of the Piedmont rim and of the westward flowing streams, even of such streams as the Tennessee in its middle course, which are now recognized as possessing immense value for the production of power to be transmitted from the place of its cheap production to the place of its profitable use in the form of electricity. Moreover, unlike conditions before the war when the abundance of land in conjunction with the sparsity of population and the state of industry prevented any great rise in land values even under the growing demand for Southern products, the recent demand has been such as to give monopoly values to the lands, quarries, mines, forests, and waterpowers; and the same increase of monopoly values is even more observable in connection with the growth of centres of population and industry and the rise of land values occasioned thereby.*

Development has required capital. Some of it has

* Facts illustrative of the rapid recent growth of the Southern States in wealth and of the capacity for growth can be found in abundance in the Census Reports. A few are incorporated here for examples:

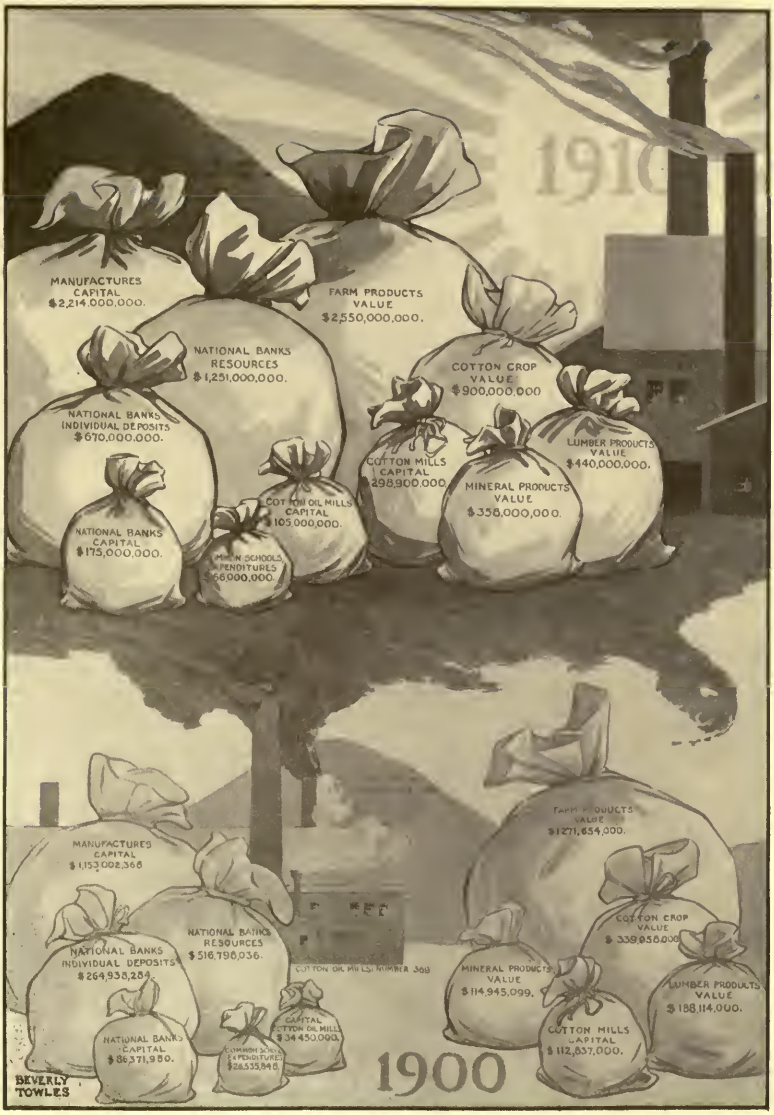
In the South Atlantic states, excluding Delaware, from 1870 to 1900 the acres of land in farms increased from 89,000,000 to 103,000,000; and the acres improved, falling from 34,300,000 in 1860 to 29,300,000 in 1870, increased to 45,400,000 in 1900. At the same time in the South Central division and Missouri the total acreage rose from 121,000,000 in 1870, to 291,700,000 in 1900. The acres improved, 39,000,000 in 1860, were 40,000,000 in 1870; and rose to 80,000,000 in 1900.

Farm values in the South Atlantic states, excluding Delaware, decreased 40 per cent. from 1860 to 1870, and rose 44.7 per cent. in the decade to 1880: 27 per cent. in the decade to 1890; and 9.7 per cent. from 1890 to 1900, thus doubling in value since 1870, and standing in 1900 at $1,413,000,000, compared with $1,172,000,000 in 1860. The total of farm values the South Central states and Missouri started in 1860 at $1,965,000,000; dropped 33 per cent. to $1,301,000,000 in 1870, and rose to $1,780,000,000, $2,677,000,000, and $3,894,000,000 respectively in the three decades following.

Comparing cotton manufacturers in 1890 and 1905, Massachusetts ranks first among the states for the production of such goods, producing in the former year 37.4 per cent., and in the latter 28.9 per cent. of the total. In the meanwhile North Carolina, South Carolina, and Georgia have crowded Rhode Island from the second to the fifth place. In 1890 these three Southern states together produced one-third as much as Massachusetts; in 1905 together they produced in all as much as she did.

From 1890 to 1905 Alabama raised the product of her iron and steel mills from $12,500,000 to $24,600,000, thereby maintaining her place as fourth among the iron and steel producing states, contributing barely 3 per cent. to the total, while Pennsylvania, Ohio, and Illinois contribute 75 per cent.

From 1900 to 1905 the states south of the line of the Potomac and Ohio, including Arkansas, Louisiana, Texas, and Oklahoma, increased the amount of capital invested in manufactures 72.8 per cent. (i. e., from $805,000,000 to $1,391,000,000);



TEN YEARS' GROWTH OF THE SOUTHERN STATES.

(The South has grown approximately one hundred per cent. in the past ten years.)

been accumulated from year to year out of the savings of current production. But most of it has been brought in from outside. Even the farmer has since 1865 lacked as never before the ready capital for carrying his business through the season and has been forced to borrow on disadvantageous terms, upon the security of the crop to be raised, from the men who looked forward to buying the crop in order to sell it again at a profit. Some farmers have failed; but every year more are becoming independent of the lender.

Other large amounts of capital went into the development of the mines and railroads and the forests, and into factories of all sorts. Some of it went into the development of public utilities and municipal improvements; and into that vast variety of expensive buildings: warehouses, factories, stores, offices, dwellings, churches, school houses, colleges, a variety of other philanthropic institutions, and all the equipments that make it profitable and attractive for people to live together in large numbers.

With it all, population has grown in numbers and productive efficiency; and a larger percentage of the population is devoting itself to the derivative occupations, showing that the population has an income from its productive powers and its investments sufficient to permit of indulgence in such things as these

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and the value of the product 52 per cent. (i. e., from $1,020,000,000 to $1,550,000,000).

Alabama was producing 13,000 tons of coal in 1870, 3,572,000 in 1889, and 10,354,000 in 1902. The product was valued at $3,961,000 in 1889, and $12,419,000 in 1902. Its iron ore product was valued at $1,511,000 in 1889, and $3,937,000 in 1902. Arkansas has increased its output of coal from $514,000 in 1890, to $2,539,000 in 1902. The value of Florida's phosphate rock has increased from less than $50,000 in 1890, to $2,655,000 in 1902. Georgia quarries doubled their output from 1890 to 1902, reaching $2,000,000. Kentucky's output of coal first reached a million tons a year in 1879 and increased to 6,766,000 tons in 1902. Tennessee's coal output more than doubled from 1890 to 1902, when its value was $5,400,000. The phosphate quarrying of Tennessee rose from nothing to a product of $1,300,000 per annum in the same period, and her output of iron ore increased from a half million dollars to over one million. The petroleum of Texas rose in value in a few years from nothing to over $4,000,000, and her coal output in twelve years tripled. Virginia's output of coal increased five-fold in twelve years, being valued at $2,500,000 in 1902. Her iron ore output remained standing at a value of about $1,000,000 to $1,500,000.

occupation classes purvey. This is shown by the number of those whose business it is merely to entertain and of those engaged in education and in religious, charitable, and philanthropic work of many forms.

While so much progress has been made in comparison with the past, it must be remembered that other sections have enjoyed the same and often greater advantages, and there is one point, at least, in which the South is still handicapped, namely, in the economic efficiency of much of its laboring population. The Anglo-Saxon is indeed the same in the two sections and nowhere to be discounted for efficiency. But the black man has held back the European laborer from the South and its immigrant population is as yet comparatively inconsiderable. The South lacks its share of those efficient laborers, those producers, thrifty economizers, and rapid accumulators of wealth, such for instance as the Russian Jew and the Italian in the cities and the Scandinavian and German, as on the farm lands of the West. Their incentive to hard work and frugal living comes from the growing desire to have and to enjoy those things, many of them new wants to these people, which cannot be obtained by them without present self-denial. It increases production and accumulation in the present and increases investment and income for the future. To such stimuli the immigrant classes mentioned are notoriously as responsive as the negro still is unresponsive. The progress of the African is slow; and for the present and some generations to come he must undoubtedly stand as economically inferior to the Caucasian.

The South has by no means reached the development that the North and the East have reached, or that it is capable of attaining. Its urban population is still proportionally small in the aggregate and

is distributed into a large number of small units. The African race cannot increase by immigration and the rate of its natural increase as it struggles in its competition with the white race seems to be rather decreasing. The movement of blacks to towns and cities has enhanced the death rate of that element. The Caucasian population should increase both from natural growth and from immigration. While conceivably the mines and quarries must sometime be exhausted, that end is not immediately to be apprehended. The exhaustion of the forests is more imminent—unless fortunately the new ideas of conservation are to be applied in time. In that case the forests, the waterpower, and the soil, conserved and supplemented by labor and by capital in the form of new inventions and methods, should become perpetually inexhaustible for vastly increased numbers enjoying greater incomes. Public wealth will indeed be greater and those portions of it which are in private hands will be estimated at higher commercial valuations.

*ESTIMATED TRUE VALUE OF ALL PROPERTY, 1860–1904.
(Special Report on Wealth, Debt, and Taxation, Census Office, 1907, pp. 42–43.)
[In millions of dollars.]

State or Territory.	1904			1900		
	Total.	Taxable.	Exempt.	Total.	Taxable.	Exempt.
Continental United States..	107104	100273	6831	88517	82305	6213
No. Atlantic States.....	38302	35454	2847	32306	29967	2339
So. Atlantic States.....	7937	7245	692	6679	6012	667
Delaware.....	230	221	9	212	203	9
Maryland.....	1511	1417	94	1317	1228	89
District of Columbia....	1040	645	395	929	541	388
Virginia.....	1288	1235	53	1102	1054	49
West Virginia.....	840	814	26	660	636	24
No. Carolina.....	842	812	30	682	653	28
So. Carolina.....	586	566	20	486	467	19
Georgia.....	1167	1121	46	936	893	43
Florida.....	431	412	19	356	337	19
No. Central States.....	40821	39331	1490	33447	32058	1389
So. Central States.....	10052	9323	729	8207	7453	755
Kentucky.....	1527	1450	78	1365	1292	73
Tennessee.....	1104	1058	46	957	916	40
Alabama.....	965	935	30	775	747	27
Mississippi.....	688	675	14	558	544	13
Louisiana.....	1032	980	53	815	765	50
Arkansas.....	804	781	23	604	581	24
Indian Territory.....	459	242	217	348	151	197
Oklahoma.....	636	466	170	463	237	226
Texas.....	2836	2737	99	2322	2219	103
Western States.....	9993	8919	1073	7878	6815	1063

* See table submitted with article on Accumulation of Wealth before 1865, Volume V.

*ESTIMATED TRUE VALUE OF ALL PROPERTY, 1860–1904.—Continued.

(Special Report on Wealth, Debt, and Taxation, Census Office, 1907, pp. 42–43.)
[In millions of dollars.]

State or Territory.	1890 Total.	1890 Taxable.	1890 Exempt.	1880 Taxable and Exempt.	1870 (Taxable) Currency Basis.	1870 (Taxable) Gold Basis.
Continental United States	65037	61204	3833	43642	30069	24055
No. Atlantic States	21435	20226	1209	17533	15290	12232
So. Atlantic States	5133	4722	411	3759	2249	1799
Delaware	176	171	4	136	97	78
Maryland	1085	929	156	837	644	515
Dist. of Columbia	344	199	145	220	127	101
Virginia	862	841	21	707	410	328
West Virginia	439	427	12	350	191	153
No. Carolina	584	565	19	461	261	209
So. Carolina	401	393	8	322	208	167
Georgia	852	820	32	606	268	215
Florida	389	376	13	120	44	35
No. Central States	25256	24307	949	16186	9542	7634
So. Central States	6401	6006	395	3882	2152	1722
Kentucky	1172	1113	60	902	604	483
Tennessee	888	863	25	705	498	399
Alabama	623	604	19	428	202	161
Mississippi	454	442	13	354	209	167
Louisiana	495	462	33	382	323	259
Arkansas	455	436	19	286	156	125
Indian Territory	160	57	103	...	...	...
Oklahoma	48	14	34	...	...	...
Texas	2106	2016	90	825	159	127
Western States	6811	5942	869	2282	835	668

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* See table submitted with article on Accumulation of Wealth before 1865, Volume V.

PROPERTY INSURANCE IN RELATION TO SOUTHERN ECONOMIC DEVELOPMENT.

Business conditions in the South immediately after the war were exceedingly unfavorable to the conduct of any sound commercial enterprise or the maintenance of conservative business methods. A depreciated currency, with all of its attendant unsound conceptions of intrinsic values, carpet-bag government and political unrest and disorders, all tended to bring forward dishonest promoters, to foster all kinds of get-rich-quick schemes, and even to tempt honest men to a recklessness in commercial matters that was fatal to the sound development of any kind of business. Property insurance, being essentially a speculative business, suffered especially from these untoward conditions. Insurance companies of every kind sprang up on all sides, and an era of "wild-cat" insurance ensued that was disastrous to the economic development of the South.* Stock companies were organized and started in business without having any of their capital stock paid in. The "stock-note" heresy was in full vogue. This was a scheme whereby notes of the subscribers to the capital stock were accepted, with the understanding that only so much should be collected from the makers as might be necessary to meet possible losses. Of course such obligations were well-nigh worthless as insurance funds. In Kentucky, in 1868, only one of the ten domestic fire companies had a paid up capital.† The promoters pocketed the premium receipts as profits, and the companies went to the wall upon the happening of the first serious

* A very graphic statement of the deplorable conditions of this time may be found in the first *Kentucky Insurance Report* in 1869, published in 1870, at p. 90 *et seq.*

† *Kentucky Insurance Report* for 1869, *ubi supra.*

loss. Numerous local assessment companies were formed, which were likewise unable to meet the first considerable disaster. But it was not only against the unsound domestic companies that the unfortunate property owner, now come to realize the need of insurance, had to contend, but also against the invading "wild cats" from other states. These unsound institutions, both domestic and foreign, contending viciously for the privilege of defrauding insuring property owners, reduced rates so greatly that the relatively few sound and honestly managed companies were well-nigh ruined by the unfair competition. These intolerable conditions brought into being in 1866 the National Board of Underwriters, which by fixing rates and conducting a vigorous campaign for educating insurance men and the people generally in the elementary principles of sound insurance, bettered the situation somewhat. The Underwriters' Association of the South, with the same end in view, was established in 1871,* and since 1882 rates in the Southern states have been fixed by the Southeastern Tariff Association.†

A still more potent influence for the relief of the people was found in the state legislatures which soon vigorously resumed the attempts, begun just before the war, to regulate and control the insurance business. During the ten years next succeeding the close of the war acts were generally passed requiring of all companies annual reports of their business and financial condition, the reservation of an insurance fund corresponding to the undetermined risks outstanding, and making penal the declaring of any dividend that would impair the capital stock or the insurance reserve fund. In addition, foreign compan-

* *American Exchange and Review*, XXVII, 183. The proceedings of the first meeting contain a vehement protest against state supervision.

† *Ann. Am. Acad. Polit. Sc.*, XXVI, 334, 343.

ies were required to deposit with the state treasurer a certain sum in bonds or other securities subject to the claims of policy-holders within the state, and to designate some person within the state upon whom service or process might be made, thus making it possible for the policy-holder to sue the foreign company in his own state. Some officer of the state government, as the auditor or comptroller, was particularly charged with the duty of enforcing these regulations and of generally supervising the business of insurance companies. More recently special departments of insurance under the direction of commissioners of insurance have been established in nearly all of the states.

The combined result of the activities of the underwriters' associations and of state supervision was rapidly to slough off the unsound companies and to leave surviving only those that were reasonably sound. Even some well-managed companies failed to survive the severe financial depression of the early seventies. The fearful mortality of this period is strikingly evident when it is noted that of the one hundred and sixty companies doing business in the ten states of Alabama, Arkansas, Georgia, Kentucky, Louisiana, Maryland, North Carolina, Tennessee, Texas, and Virginia, in 1870, forty-nine, or more than 30 per cent. of the whole number, had failed before the end of 1877.* In the same states in 1880 there were one hundred and twelve companies. During the decade following, eighty-five new companies were chartered, while fifty-three discontinued business, leaving at the close of 1889, one hundred and forty-four survivors, thus showing a mortality for the decade of more than 27 per cent.†

Thanks to the strict regulations and the jealous

* *Fire Insurance Failures Since* 1870, p. 3, et. Seq.
† Census of 1890.

supervision of the state governments, those Southern companies that continued to do business during the last decade of the century were, for the most part, on a sound financial basis and honestly administered. But the Southern companies had learned their lesson too late. A quarter-century of fraudulent and unsound practice and mismanagement had destroyed the confidence of the Southern property-owners in Southern companies, and the business, which had increased enormously in volume, had been given almost wholly to the stronger and more wisely managed companies from the Northern states and foreign countries. In 1885 the total amount of premiums paid for property insurance in all of the Southern states was $20,693,942, of which only $12,386,504, or about 60 per cent., was repaid in losses. In 1908 the Southern people paid out for property insurance $61,276,403, while $38,024,333, or about 62 per cent., was returned in losses paid.* A relatively small proportion of these huge sums paid in excess of losses went to Southern companies. Thus, for example, in 1904, the total marine business written in Alabama, Louisiana, and Texas amounted to $308,508,895, and the premiums paid to $1,648,000. The insurance companies of these states carried only 4 per cent. of the risks, and received less than 4 per cent. of the premiums.† In Virginia, where the local companies have fared rather better than in any of the other Southern states except Maryland and Missouri, the report of the commissioner of insurance shows that in the year 1907 all of the Virginia companies, including the local mutuals, received less than 19 per cent. of the premiums paid for property insurance. In Florida there are no

* Figures taken from *Distribution by States of Fire Insurance in the United States*, 1909. Published by The Spectator Co.

† Huebner's Development of Marine Insurance in the United States," *Annual Acad. Polit. Sc.* XXVI, 441.

local companies and in Arkansas there is but one. It will evidently be many years before the Southern people will regain their lost opportunity to reap the profits of their own insurance business.

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LIFE INSURANCE IN THE SOUTH.

THE enormous material progress of the South since the close of the War between the States has been shared by life insurance companies transacting business in the Southern states. The population of that section has increased from 11,000,000 to 28,000,000 during the period 1860-1910, and the true value of property as estimated by the *Manufacturers' Record* has increased from six billion to twenty-one billion dollars. Large areas which formerly were swamps and low lands have been reclaimed, to the material advantage of the people, and harbors and inland towns which were formerly breeding places for pestilence and disease are now sanitary and healthful. The white death rate of Southern cities has declined from an average of 26.7 in 1871, and 32.2 in 1878, to 17.4 per thousand in 1904. The negro death rate has undergone a corresponding reduction, but the mortality of the colored race re-

mains at about 50 per cent. in excess of that of the white race in Southern cities at the present time. During the five years ending with 1904, the general death rate of American cities north of the 40th degree of north latitude was 16.9, and of cities south thereof, 17.6 per thousand. It is a well-known fact that there is a very close relationship between altitude and the general death rate; and, considering that a large part of the South consists of low lands, it is not surprising to find that even at the present time the general death rate of American cities situated at an altitude above 500 feet should be 14.4 per thousand, as against 18.7 for cities of lower elevation. The higher average temperature of the Southern states also bears some relation to the death rate, since for American cities with an average temperature of 60 degrees, and over the general death rate is 18.6 per thousand, against 14.6 for cities with an average temperature below 60 degrees. Many of the Southern cities, and particularly the seaports, have a high relative humidity, which, other things being equal, is usually coincident with a high general death rate. All these factors affect more or less the mortality problem (which, of course, underlies all life insurance considerations), but fortunately the physical conditions of the land are subject to modification by sanitary improvements and by social and industrial betterment. While, therefore, the Southern states, even at the present time, cannot be said to constitute a field entirely safe for life insurance transactions on a large scale, the progress which has been made in the reduction of the death rate and the improvement in the general conditions of life have been so remarkable that the outlook for the future need cause no apprehension.

Strongly influenced by these considerations, life insurance has made rapid progress in the South

since the close of the war. At first the field was developed almost exclusively by Northern companies, but gradually local institutions have been developed; and there are now forty-one legal reserve life insurance companies in the different Southern states, with $322,000,000 of insurance in force on Dec. 31, 1908. Only one of these companies dates from the war period, that is the Maryland Life Insurance Company of Baltimore, which was incorporated under date of March 10, 1864. The next oldest existing Southern company is the Mutual Life of Baltimore, chartered in 1870, followed by the Life Insurance Company of Virginia, chartered March 21, 1871. Two companies were chartered during the eighties and two during the nineties, the remainder having come into existence since 1900. In other words, most of the existing life insurance companies are of very recent growth.

Of the $322,000,000 of insurance in force on Dec. 31, 1908, $73,360,000 was in force in Virginia, $52,159,000 in Georgia, $48,208,000 in Texas, $37,762,000 in Kentucky, and $33,722,000 in North Carolina. These may be considered the insurance states of the South at the present time. The vast majority of life insurance in the South to-day is still with Northern insurance companies.

On Dec. 31, 1908, the total amount of legal reserve life insurance in force in Southern states with Southern or Northern companies was $2,445,000,000, or $130 per capita of white population. The corresponding per capita insurance in force for the total insured population in the United States as a whole was $171. The relative degree of development was highest in Maryland, where it was $229 per capita, followed by Georgia with $198, Louisiana with $193, Florida with $186, and North Carolina with $178. The local development is, of course, largely influ-

enced by large cities, and in proportion to white population the amount of insurance per capita in Southern cities will compare favorably with cities of corresponding size in the North.

As previously stated, the oldest existing Southern life insurance company is the Maryland Life of Baltimore. Regarding this company, it has been stated that its charter was obtained from the General Assembly of the state of Maryland in 1864, but that it was not until July, 1865, that the necessary preparations for the organization of the company were completed and business was actually begun. The stockholders met to elect the first board of directors on June 7, 1865, and on the following day the new board chose George B. Thomas as the first President of the company. The doors were opened for the transaction of business on July 12, 1865, and on that date Policy No. 1 was issued, for $10,000, on the life of the president. The first office was at 15 South street. The company now occupies a handsome building of its own at 8 and 10 South street. The present officers are: Wm. H. Blackford, president; John W. Hanson, secretary; Douglas H. Rose, actuary; and Andrew H. Whitridge, M.D., medical director. The assets of the company are $3,025,000, and the surplus to policy-holders $415,000. The company, since organization and to Dec. 31, 1909, had received in premiums from policy-holders $7,680,247, or $642,563 less than has been paid in return or is now held for their protection.

Coincident with the growth of the insurance business in the South has been the development of the theory and practice of state supervision. Apparently the first state to take official cognizance of the insurance business was Mississippi, which, as early as 1857 provided, in the revised code of that year, for the supervision of insurance by the auditor of public

accounts. The legislature in 1902 enacted a new code of insurance and created a Department of Insurance, of which Mr. W. Q. Cole was the first commissioner. The next state to legislate on the subject of insurance was Alabama, where the business of insurance has been subject to supervision since 1860, under authority vested in a state auditor. By an act of the legislature, however, in 1907, this duty was transferred to the secretary of state, who became insurance commissioner, *ex-officio*. The first Auditor in charge of insurance interests was Mr. W. J. Greene, who held office from 1860 to 1865. Insurance supervision in Georgia dates from 1869, when in an act approved on March 19, of that year, the comptroller-general was charged with the duties of supervising insurance companies. The first official to hold this office was Mr. Madison Bell, who remained in charge of the department from 1869 to 1873, followed by Mr. W. L. Goldsmith, and during the same year by Mr. Wm. A. Wright, who has held office ever since. Insurance supervision in West Virginia dates from 1864; in Virginia from 1866; in Kentucky from 1870; in Tennessee, South Carolina, and Texas from 1876; and in Louisiana from 1884.

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THE ECONOMIC ASPECTS OF THE SOUTH AS A HEALTH AND PLEASURE RESORT.

SITUATED between the Mason-Dixon line and Key West, 24° 30′ north latitude, the Southern states present the general climatic characteristics of Southern Europe, Northern Africa, and Middle Asia.*

*While the isotherms run farther south in the Southern States than would be inferred from this comparison of latitudes, this fact would not affect the general characterization of the climate.

While Richmond and Lynchburg, Virginia, are about on the same parallel with Seville, Palermo, and Athens, St. Augustine is on the same parallel with Cairo, and Key West is further south than Benares and only a little farther north than Calcutta and Mandalay.

The climate is further modified by proximity to the sea—the Southern states having more seacoast than all the rest of the Union—and by the Appalachian Mountains, which run parallel with the seacoast almost as far south as Birmingham and Atlanta, and reach their greatest elevation in western North Carolina. With the mountains should be mentioned the fact that the largest forest area, especially of pine, in the United States is in the South. This contributes to the modification of the climate and to its healthfulness.

While the mean winter temperature is well above freezing in all the Southern states, though not in all parts of all the states, and is sub-tropical in Southern Florida, the mid-summer temperature in the mountain regions is between 70° and 80°, and is thus similar to that of southern Michigan, Wisconsin, and Minnesota.

This mild and healthful climate, coupled with the natural beauties, historic interest, and commercial opportunities of the section, attracts increasing numbers of health and pleasure seekers to the South from all parts of the country east of the Rocky Mountains, but especially from the North Atlantic states. The origin of this movement antedates the war between the states. But while Old Point Comfort (the original Hygeia Hotel) was built there in 1821 and the White Sulphur Springs, in Virginia, and some other places, were popular resorts before the war, the lack of transportation facilities and the strained relations between the sections from 1830

to the close of the Reconstruction were such as to restrict both the freedom of the movement and its economic importance.

Since the war, however, the movement has progressed with great rapidity, and has reached imposing proportions and distinct economic importance. Not only have certain specific places along the Atlantic seaboard from Old Point to Key West, and thence around the Gulf Coast from Tampa to Corpus Christi, and other inland places along the major routes of travel, such as Asheville, Aiken, Augusta, Hot Springs, and many others, become definite centres of tourist resort; but large areas contiguous to these centres, and in some states, especially in Florida, the entire state is penetrated and influenced by this tourist travel and transient residence. There is, also, an important and increasing tendency on the part of these visitors from other sections not only to repeat and extend their travels, but to establish winter homes of their own in the South. This is most conspicuous in the states of the Atlantic seaboard, Virginia, North and South Carolina, Georgia, and Florida. In the latter state, the whole peninsula, especially south of Palatka and Gainesville, is dotted with such homes.

Such a condition is necessarily of great economic significance, to the South first and then to the nation as a whole. Washington touched on this point in his Farewell Address. Pointing out the importance of unity and the strengthening of the sense of union among the several states, he went on to say: "The *North,* in an unrestricted intercourse with the *South,* protected by the equal laws of a common government, finds, in the productions of the latter, great additional resources of maritime and commercial enterprise, and precious materials of manufacturing industry. The *South,* in the same intercourse, bene-

fiting by the agency of the *North,* sees its agriculture grow and its commerce expand." The economic contrasts, and finally the political conflict, between the sections impaired this intercourse, as has been said, and defeated its natural consequences. The present tourist movement (since the eighties) has been an important feature in inter-sectional intercourse, and has had its economic influence both in the directions indicated by Washington and in other ways unforseen by him.

Perhaps the most important influence is the potent tendency of such intercourse to develop the spirit of sympathy and mutual understanding between the sections, thus obliterating sectional antagonism, reducing to a common mean sectional divergencies, and promoting that sense of common interests and a common union of which Washington spoke. This involves the acquisition of new ideas by the visitors, and the infusion of new ideas into the South, with the readjustments consequent upon the acquisition of more knowledge and larger and more liberal views. In this particular the movement is the converse of the education of Southern men and women in Northern universities and colleges.

More concretely, the movement tends to spread and emphasize a knowledge of the resources and opportunities of the South, and thus to hasten its development both by the introduction of new men and new capital and by arousing the spirit of activity and emulation among the Southern people themselves. Not only does the North find " great additional resources of maritime and commercial enterprise, and precious materials of manufacturing industry " for use in the North; but it finds a rich field and abundant opportunity for the use of Northern men and money in the South. Not only does the South "see its agriculture grow and its commerce

expand,'' but it sees the opportunities and feels the impulse towards diversified industries and a larger commercial life, so that it is less and less willing to leave manufacturing industries to the North and is steadily widening its own activities in that proper and inviting field.

It is not to be maintained that the New South is the product of any single cause; but probably nothing has done more to give impulse and direction to its progress than intercourse between the sections, one important feature of which is the tourist movement southward. The general situation may be illustrated by conditions in a tourist town. In addition to the general activity created by the presence of many visitors and transient residents and the large amount of money spent by them, there is a general breaking down of ultra-sectionalism on both sides, especially among the permanent population, a tendency towards cosmopolitanism of view and sympathy, a new and larger outlook upon life and its opportunities, and an impulse towards the business principles and activities which the visitors exemplify and which they describe and discuss among themselves and with their hosts. Thus the traveller and transient resident leave behind them much more than the money they have spent for their entertainment. They leave the pregnant thought of change in the direction of a new social and economic life.

One other aspect of this subject may be mentioned in conclusion. Every hour added to working life, whether in a given year or in the life term, and every element added to working energy of the individual, has a monetary and economic value. Resort to the South for pleasure, and, especially, for health, tends to the saving and lengthening of life and the increase of energy. Just how much this contributes to the wealth and the economic efficiency of the nation it is

impossible to say; but it is a consideration that cannot be overlooked, and it is quite safe to say that its contribution is considerable.

Approximately 300,000 people die annually in the United States from diseases of the throat and lungs, more than two-thirds of them from pneumonia and consumption. Many times this number are constantly afflicted with these diseases. Resort to the milder climate, to the bracing and healthful air of the mountains and wide forest areas of the South, would save many and relieve most of these sufferers. If their average economic value be $700 a year, the saving of one year of effective life to 100,000 of them would constitute a direct contribution of $70,000,000 to the wealth and efficiency of the nation. This in general terms. But who can estimate what it may mean to the nation and the world, if his winter home in Florida adds a working year to the life of such a man as Thomas A. Edison?

The South is making here a great but quiet contribution to the nation's wealth and power. Its contribution is limited by reason of the fact that too many of those to whom the South means longer life and better work are unable, because of poverty, or unwilling, because of ignorance, to take advantage of its benefits. When a wise philanthropy shall have opened the way to some, and a better knowledge shall have provided the impulse to others, the New South will become the greatest conservator of the nation's human resources and give to life both a larger significance and a larger value.

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OUTLOOK FOR SOUTHERN ECONOMIC PROGRESS.

THE NATURAL RESOURCES OF THE SOUTH AND THE FUTURE.

THE tardy appreciation and exploitation of the natural wealth of the South offers its own compensation in the fact that their exploitation in large part still lies in the future. Much has already been accomplished, but only a pittance of the original wealth of the region has been exhausted. The thickly forested areas of the colonists have been somewhat deforested to make room for tilled lands and cultivated plantations. Much of the lowlands of the Coastal Plain, the uplands of the Piedmont Plateau and the mountain slopes of the Appalachians is still forest-clad with original or full-grown second growth timber. Systematic forestation and orcharding may maintain the woodlands practically as they are in spite of annual crops sufficient to meet all reasonable demands. Some of the soils have been rendered practically sterile to favorite crops through excessive demands, but these have not become exhausted. When their toxic condition has been removed by remedies, rest, or a rotation of crops, they will doubtless yield in the future returns comparable to those of the past. The faunal wealth of the lands and streams have diminished, but the importance of pelts, wild meats, and fish has decreased with in-

creased facilities for transportation and the domestication of cattle.

The original forest area of the South, estimated at over three hundred and sixty million acres, has been reduced to the present area of 232,400,000 acres or about 42 per cent. of the total forest area of the country. The development of the lumbering industries of the South relative to the rest of the country is shown in the significant fact that while producing only a sixth of the total lumber cut of the country in 1880 the South to-day is furnishing practically half of the lumber of the country, although the total annual yield has nearly doubled since 1880. The South furnishes practically all of the yellow pine, cypress, yellow poplar, and tupelo; two-thirds of the oak, hickory, and red gum; and half of the chestnut and cottonwood cut in the entire United States.

The relative production of farm crops is not as favorable to the South to-day as it was in 1860, but with the progressive diminution of the free and virgin soil of the West the ratio is destined to return towards ante-bellum conditions when the South produced 44 per cent. of the corn, 70 per cent. of the beans and peas, 82 per cent. of the tobacco, 92 per cent. of the sweet potatoes, and practically all of the sugar and rice. Although the present-day yield per acre is less than the average for the country, this must be looked upon as due to the methods employed rather than to the natural conditions. The improvement in method which is going on is shown in the increase in yield per acre of 1900 as compared with that of 1880.

A resource of the South which will help greatly in the future industrial life is the abundant water-power of the streams which is now utilized to less than a sixth, possibly less than a tenth, of its possibilities. The erection of hydro-electrical plants and

the establishment of numerous small mechanical industries throughout the upland and mountainous areas of the South will profoundly influence the Southern states in the coming decades. The rate at which changes are going on to-day may be inferred from the fact that during the first decade of the present century the taxable property of the South has practically doubled, indicating a rate of increase twice as great as that of the decades from 1880 to 1900.

More fundamental than the character of the surface soil and vegetation for the perpetuation of a community are the stores of mineral wealth. These have been scarcely touched in the South. Prior to the war they remained unknown or unutilized and their large-scale exploitation belongs to the closing decades of the Nineteenth century. Among the most important sources of mineral wealth are the deposits of coal, oil and gas, iron, the precious metals, and the phosphates.

Coal.—Bituminous coal fields underlie large areas in Maryland, both Virginias, Kentucky, Tennessee, Georgia and Alabama, Missouri, Oklahoma, Arkansas and Texas. Lignitic coals also occur in Alabama, Mississippi, Louisiana, Arkansas, and Texas. According to estimates prepared by the United States Geological Survey this territory originally contained the stupendous quantity of 614,056,000,000 tons, of which to the close of 1907 only about 1,200 million tons had been produced, representing an exhaustion (due to mining waste, breakage or loss in transportation) of approximately 1,790,000,000 tons, or about 1/350th of the total original quantity. The mining of this almost incomprehensible quantity of coal will in itself excite a large industry and sustain a large population. If, moreover, this fuel is consumed within the South and not exported beyond its

borders it will stimulate almost infinite possibilities in manufacturing industries which in turn will demand increased agricultural development.

Oil and Gas.—The amount of oil and gas contained in the fields of the South cannot be stated with the same degree of confidence as attaches to the figures on coal and iron. Approximate estimates have, however, been made by Dr. David T. Day of the territory in which probable or proven deposits may be utilized in the future. According to his figures there are nearly 2,000 square miles of oil fields and over 2,500 square miles of gas fields within the South. What the oil content of these fields may be is largely guesswork. An estimate of 1,000 barrels per acre for West Virginia, Kentucky, and Tennessee is regarded as ample, while it is estimated that the Texas field will surely yield 200,000,000 barrels, Louisiana 50,000,000, and Oklahoma at least 282,875,000 barrels. To the close of 1907 the fields of the South had produced 337,131,582 barrels of oil. Since the rate of production is so great compared with the quantity available it is estimated that the present supply will be practically exhausted before the latter half of the present century. The life and contents of the gas fields are even more uncertain. The duration of high pressure in the present known fields cannot last long, but the supply of gas may continue for some years, dependent chiefly on the present-day waste and the future methods of obtaining the low pressure gas.

The *Iron ores* of the South are destined to continue, as they have become, the basis of a great industry. The presence of rich and valuable deposits of available iron ore has long been known in the South, but their active exploitation in the Birmingham and Chattanooga districts is a matter of recent decades. The future of these regions and others yet

undeveloped will depend upon many factors summed up in the availability of their ores. The chief factors affecting the life of a district are the absolute cost of mining and reducing the ore, the delivery of the product to the market, and the relative cost compared with rival districts. The cost of mining depends upon the accessibility of the ore, its size and situation, its purity and homogeneity, its content of metal and the presence of deleterious accessories. Considering all of these and many other factors, Dr. C. W. Hayes has estimated that there are available fully 850,000,000 tons of iron in the South under present conditions and possibly 2,000,000,000 more which are not available under present mining and manufacturing conditions.

The ores representing this great source of undeveloped wealth, classified according to character or district, estimates for the South as follows:

	EASTERN.		MISSISSIPPI VALLEY.	
	Available.	Not available.	Available.	Not available.
Specular and red ores	8,000,000	53,000,000	15,000,000	10,000,000
Clinton ores	463,540,000	970,500,000	.....	.....
Brown ores	54,400,000	168,000,000	300,000,000	560,000,000
Carbonate ores ..	.....	62,000,000	.....	.....
Miscellaneous ...	12,500,000	23,000,000	.....	.....
Totals	538,440,000	1,276,500,000	315,000,000	570,000,000

The Clinton ores are in great measure unavailable under present conditions either because of the thinness of the beds, as in Virginia, or because of the heavy overburden, as in Kentucky, yet the Birmingham district alone is estimated to have sufficient available Clinton to supply 358,470,000 tons or nearly sixty times the present annual production of Virginia, West Virginia, eastern Kentucky, North Carolina, South Carolina, Georgia, Alabama, and east Tennessee. Since at the present rate of increase in

production the supply of first-class ore will be practically exhausted in a generation, it is evident that the iron industry of the South is bound to become relatively more important in the next few decades.

Lead and Zinc.—Lead and Zinc ores in the South are practically limited to the single state of Missouri. In the Joplin or southwestern district the production is increasing yearly, but Lindgren believes the supply "is sufficient to keep up the present production for fifty years at least." In the southeastern district the production of lead has been increasing during the last few years, but the supply will undoubtedly last for a great many years, and there are possibilities of rich deposits at greater depths, especially on the southerly sides of the St. Francis Mountains.

Phosphates.—The influence of phosphates in agricultural industry can hardly be overestimated, and the occurrence and production of rock phosphates in Florida, South Carolina, and Tennessee, the main sources of phosphate for the United States, must mean much for the future industrial life of the South. The phosphate industry is of relatively recent development. The commercial possibilities of mining phosphates were scarcely recognized until after the war, and until 1888 South Carolina enjoyed a monopoly of the industry. Beginning in that year Florida's production surpassed that of South Carolina in 1904, which had been surpassed by Tennessee as early as 1899. South Carolina has already yielded over four-fifths of its known original deposits leaving not more than 3,000,000 tons which at the present rate may last twelve to fifteen years. Florida from 1888 to the close of 1908 has produced over 14,000,000 tons of phosphate, and according to Van Horn "it appears conservative to estimate an available supply remaining at more than 15,000,000

tons, or a little more than has already been produced." At the present rate of production the phosphates of Florida will continue for a little over ten years.

The phosphate industry of Tennessee promises greater longevity. To the close of 1908 the total production for the state reached only 5,315,422 tons, while the total available supply remaining has been estimated at 103,500,000 tons which at the present rate would last about one hundred and sixty years. Ultimately as the only producing state the rate of production will increase and the life of the field shortened.

To summarize the future possibilities of the South it is sufficient to review the facts that the *cotton* production equals in value the gold, silver, copper, and other metals except iron produced in the entire country. The production of the industries based on cotton seed equals the total gold output of the United States, exclusive of Alaska. The farm crops of the South in 1908 exceeded seven times the value of the world's production of oil. The estimated merchantable timber exceeds 500,000,000,000 board feet, the value of which is constantly increasing by natural growth, depletion of the forests and consequent rise in price.

Waterpower is abundant. Coal deposits occur of immense size. Iron exists in quantities to outlast the depletion of other fields, while phosphates and sulphur are sufficient to control the world industry in these materials.

With all of these natural resources utilized by the increasingly intelligent and actively growing population of the South, the region is bound to exert a greater influence in the industrial and economic life of the nation, and to acquire a deserved prominence delayed by the devastation and the consequent un-

fortunate migration of its population subsequent to the war.

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INFLUENCE OF THE PANAMA CANAL ON SOUTHERN AGRICULTURE, INDUSTRY AND COMMERCE.

No part of the United States has greater economic interest in the Panama Canal than has the South. Under present conditions the Southern states can enter the markets of the countries on the western coast of North and South America and of the lands across the Pacific only by overcoming a most difficult transportation handicap. If the people of the Southern states ship by rail to the west coast of the United States they secure no better rates than are obtained by the people of the northeast section of the country. If the products and goods are sent by water the facilities are greater and the rates are lower from the north Atlantic ports than from those of the south Atlantic and Gulf seaboards.

The South, moreover, produces much for which there is a large market on both sides of the Pacific Ocean. The developing industries of Japan already draw upon the South for raw cotton and for heavy iron manufactures. The west coast of Central and South America, being inadequately supplied with building materials and food, would make large purchases of Southern lumber and coal if those commodities had as cheap transportation as will be possible after the opening of the canal. Likewise, manufactured fertilizers sent out from the South would readily be sold in many countries of the Pacific where agriculture is carried on by means of irrigation, and where the soil is intensively cultivated.

The South will benefit not only from a larger export market which will be made accessible by the opening of the canal, but it will also gain by being able to secure Chilean nitrate for use in the manufacture of fertilizers, and the sisal and other fibrous products in the tropical Pacific countries, and coffee, sugar and hides, for which there is a market both in the South and in the Mississippi Valley states readily reached through southern gateways. Moreover, the canal will lessen the cost of Oriental wares imported from Japan and China, and also of certain products of the western coast of the United States, such as the deciduous fruits of the Columbia River Valley, the nuts from California, and the several varieties of lumber that can be secured only along our western seaboard.

The industries and commerce of the South may confidently expect to gain more than will those located in the northeastern parts of the United States. In so far as distance to Pacific markets via the canal is a controlling factor, the South will possess unquestionable advantages—a fact that is well illustrated by the following table of distances to Colon from New York, Philadelphia, and the Atlantic and Gulf ports of the South.

DISTANCES TO COLON FROM ATLANTIC AND GULF PORTS.

From	To Colon.	Less than distance from New York to Colon.
New York	1,981	.....
Philadelphia	1,960	21
Baltimore	1,914	67
Norfolk	1,779	202
Savannah	1,586	395
Tampa	1,215	766
Pensacola	1,344	637
Mobile	1,371	610
New Orleans	1,380	601
Sabine City	1,465	516
Galveston	1,481	500

The fact that the canal will be nearer to the Gulf States and cities than to the north Atlantic section will not only aid the South in developing a direct trade through the canal, but it will also assist in drawing, particularly to the Gulf ports, a larger amount of the export and import trade of the great Mississippi Valley. As the commerce of the Southern states increases with the Pacific countries reached by way of the canal, the volume of shipping visiting the Southern ports will be larger, the services will be more frequent, and there will be better facilities for dispatching more promptly freight not only from the South but from the entire central section of the United States to different parts of the world; and the growth of this export trade will cause an increasing volume of imports to enter the United States through the southern gateways.

The effect of the Panama Canal upon the agriculture of the Southern states will be both direct and indirect. The most marked direct effect will result from giving raw cotton, the great staple of the South, an outlet to a much larger market than it can now reach economically. The indirect influence upon agriculture, which will be more important than the direct benefit, will follow from the general industrial progress of the South. The canal will assist in building up the textile manufactures, the iron and steel and allied industries, and this will mean a larger home market both for raw cotton and for food products. The demands of a larger home market for foodstuffs will give the South the needed stimulus, and diversify its crops. The canal will make the South less, and not more, dependent upon outside regions for its needed food supply.

The development of the manufacture of cotton in the South has been rapid during recent years, and at least one cotton-growing state now manufactures

more raw cotton than it produces. The markets for cotton goods on both sides of the Pacific are large and are certain to be much greater in the future. It is equally unquestionable that many grades of cottons can be manufactured more cheaply in the countries located near the Southern plantations than in any other part of the world. Such being the situation, the cheapening of transportation to Pacific countries must undoubtedly hasten the growth of cotton manufacture in the South.

The iron and steel industries of the South now compete directly and sharply with those in Pennsylvania, Ohio, Indiana, and Illinois. When the canal has given the Southern furnaces and mills ready access to the Pacific, much of the Southern output, which is now sold in competition with the product of Northern mills, will be sent to markets which can unquestionably be reached more cheaply from Birmingham, Chattanooga, and other iron and steel centres of the South, than from Pittsburgh, Cleveland and Gary, and other Northern iron centres.

Both the pine and the hardwood lumber of the Southern states will be marketed extensively on the west coast of all three Americas with the opening of the canal. This will immediately enhance the value both of the standing timber and of the lumber output of the South. Likewise, the demand for Southern phosphate to fertilize the irrigated lands of the Pacific countries will increase the value of both the unmined phosphate rock and the manufactured fertilizers containing phosphate. It is possible that the agricultural needs of the South will make it wise to prohibit the exportation of phosphate in order that the limited supply may be conserved for use within the country.

The most obvious effects of the Panama Canal will be commercial and will be indicated by future

statistics of shipping and cargo tonnage. It is, perhaps, well to keep in mind that commerce is the auxiliary of industry, and that the larger economic consequences resulting from the opening of the Panama Canal will be the enlargement and diversification of American industry. That the Southern ports, particularly those along the Gulf, will secure a large share of the commerce resulting from this industrial expansion is evident when one considers the relative distances from the Mississippi Valley to New York, the greatest north Atlantic port, and to New Orleans, which may be taken as a representative Southern port.

RELATIVE DISTANCES BY RAIL FROM REPRESENTATIVE MISSISSIPPI VALLEY POINTS TO NEW YORK AND TO NEW ORLEANS.

From.	To New York.	To New Orleans.	Saving to New Orleans.
	Miles.	Miles.	Miles.
Chicago, Ill.	912	912	0
Duluth, Minn.	1,390	1,337	53
Minneapolis, Minn.	1,332	1,297	35
St. Paul, Minn.	1,321	1,279	42
Sioux City, Iowa.	1,422	1,258	164
Omaha, Neb.	1,402	1,070	332
Dubuque, Iowa.	1,079	968	111
St. Louis, Mo.	1,058	695	363
Peoria, Ill.	1,006	860	146
Cairo, Ill.	1,089	554	535
Evansville, Ind.	989	708	281
Louisville, Ky.	867	746	121
Nashville, Tenn.	939	557	382
Denver, Col.	1,932	1,336	596
Kansas City, Mo.	1,335	878	457

The rate of increase in the volume of commerce during the recent years has been greater in the Southern ports than in those of the north Atlantic seaboard. The opening of the Panama Canal will cause the commercial progress of the South to be even more rapid than it has been during the past two decades. The growth and diversification of agriculture, the expansion of the textile and iron and

steel industries, and the steady increase in shipping and in commercial facilities will cause the South to make an ever-growing use of the Panama Canal. The effect of this great waterway upon Southern progress will be large and in every way favorable.

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WATER TRANSPORTATION AND THE PROGRESS OF THE SOUTH.

THE early progress of the South was made possible by its numerous navigable waterways tributary to the Atlantic and the Gulf of Mexico; indeed, it was nearly 1870 before it became possible for the railways to supply the transportation needs of the South. The Mississippi and its great tributaries brought a large part of the Southern products to the seaboard and also drew to New Orleans an important share of the exports from the upper Mississippi Valley. The rivers flowing into the Atlantic were almost equally influential in the early development of the South. Charleston and Savannah were the first great cotton markets, and they held their priority until the spread of cotton culture over the Mississippi Valley states brought Mobile, and particularly New Orleans, into prominence in the cotton trade.

The waterways of the South located its larger cities and determined their early growth. As railroads were built throughout the South, cities having facilities for water transportation were accorded better rates than were given other cities; and thus the substitution of rail for water transportation did not cause the older cities to decline, the effect was rather to increase the rapidity of their progress.

During the past third of a century the use of waterways in the South has declined just as it has in other parts of the United States, and just as it did, for a time, in many other countries which now make large use of waterways for navigation. The competition of private railways with public waterways was sure to restrict water transportation at a time when there was not enough traffic to make full use of both railways and waterways. In the carriage of many goods the railways have unquestionable advantages over waterways, but the substitution of railways for waterways was carried farther than was necessary or was desirable. Being without adequate government regulation, the private railways were able to cut rates at points where there was water competition, to a ruinously low point for a long enough time to crush out the steamboat lines and to discourage capitalists from engaging in inland navigation.

The present rapid growth of the South in population and industry has awakened a renewed interest in the development and use of her admirable system of natural waterways. While everybody realizes that the railways have made possible the large economic development of the South, it is also evident to serious students that the time has come when the industries of the South need both rail and water transportation facilities. The economy of employing both railways and waterways for the perform-

ance of transportation services becomes greater in every country and in particular sections of a country with the increase in population and the development and specialization of industry.

Realizing the truth of this fundamental fact, the people of the South have already begun to prepare the way for the larger use of their waterways. The ports of the south Atlantic seaboard and of the Gulf have been so improved as to make them easily and safely accessible for ocean-going freight vessels. The next step to be taken is to improve the channels of the waterways leading to these ports. Substantial progress has been made in improving the system of waterways flowing into Mobile Bay, and it will be only a short time before coal can be started from the rich Alabama fields upon barges down the improved Warrior River. The use made of the Warrior River in handling coal will afford a test of the utility of barge traffic under present conditions.

Special attention is being given to the regulation of the great Mississippi River and to its improvement for purposes of navigation. The states adjacent to the lower Mississippi have spent many millions of dollars in levee work to prevent the Mississippi from inundating the fertile lands in its valley, and these levees are of assistance in the regulation of the navigable channel. Influential forces are organizing to hasten the improvement of the Mississippi above St. Louis. There is a strong movement on foot to bring about the connection of the Great Lakes with the Mississippi by way of the Illinois River. The United States government has begun the improvement of both the Ohio and the upper Mississippi. It will not be many years before these streams will have channels nine feet in depth at minimum low water. In the meantime there will probably be a channel at least nine feet in depth constructed to

connect the Great Lakes and the Mississippi. Possibly the improvements will provide for channels of greater depth than nine feet; but if that should not be done, the Mississippi, Ohio, and possibly some of their tributaries, will have been given channels as deep as those of European streams upon which many millions of tons of cargo are annually moved.

Earnest efforts are also being made to connect the many bays and sounds along the Gulf and Atlantic coast and thus to open up an inner coastal channel. A private company with the aid of the state of Florida has practically completed an inner route from Jacksonville to Key West; and the United States has authorized the construction of a short canal necessary to join Beaufort Inlet with Pamlico Sound, and thus to make possible through shipments by water from Norfolk, and other northern points, to Beaufort. Doubtless the existing channels across eastern North Carolina will ere long be enlarged so as to accommodate barges of much greater dimensions than can now be used. In connection with the Atlantic and Gulf coastal route, consideration is being given to the necessity for a waterway across northern Florida.

The many waterways of the South are now being carefully studied both by the people living in the Southern states and by the Federal government, with a view to ascertaining what policy should be followed by the states and the nation in the regulation and improvement of these waterways. Three reasons indicate that water transportation will play a larger rôle in the South in the future than it plays at the present time:

(1) Transportation demands are increasing, and, with the opening of the Panama Canal, the need of additional facilities will be even more urgent.

(2) The use of Southern streams to generate

water power to serve the needs of cotton mills and other factories is rapidly increasing. The regulation of the flow of streams by the development of water power simplifies the problem of making them useful for transportation purposes.

(3) The control of streams to reclaim over-flowed lands also assists in securing a reliable navigable channel in the rivers thus regulated.

The combined effects of larger transportation demands, the greater use of water power, and the more general reclamation of over-flowed lands will steadily enhance the influence of water transportation upon the economic progress of the South.

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THE NEGRO IN RELATION TO SOUTHERN PROGRESS.

PREVIOUS articles in these volumes have dealt with various aspects of the part played by the negro in the economic history of the Southern states. These articles have treated of past events and accomplish-

ments—of history already made. And even in that field there is almost limitless room for differences of opinion as to just what part the negro really has had in Southern economic life. The present article is concerned only with the future. It is, therefore, hardly more than a speculative attempt to forecast the course of movements and tendencies among Southern negroes—movements which are but half begun, and tendencies which are far from well defined.

The American negro has been a stumbling-block to economic prophets and theorists. It was claimed for the race, by the economists of the abolition school, that it would inherit the earth and the fullness thereof, if it were only afforded the opportunity through emancipation. The extreme supporters of the institution of slavery, on the other hand, were equally positive that, if set free and thrown upon his own resources, the negro would steadily degenerate, physically, morally, economically, and in all other respects, and that a few generations, at most, would mark the life period of the race. The puzzling and unsatisfactory feature of the present situation is, that the "spiritual descendants" of each of these schools are still waging the ancient and profitless war of words. On the one hand it is now claimed that the progress and achievements of the negro since emancipation have eclipsed the accomplishments of any other branch of the human family in the same length of time, since the world began. With equal fervor and equal disregard of the truth, the other side contends that the negro is steadily retrograding. Each side supports its position with formidable arrays of figures and citations of endless individual cases of progress or decline.

From the confusion of it all, one who is wedded to neither theory, and whose interest is merely that

of an academic truthseeker, may extract a few facts which are incontestable. Thus far the negro race in America is not "dying out." It has increased in numbers fully 100 per cent. since emancipation. It has not become a general charge upon the state. It fills no almshouses. It furnishes few recruits to the ranks of the beggar at the gate. It has become a taxpayer upon several hundred million dollars' worth of property. But it has not supplanted the white man in the South. It has largely, and here and there wholly, lost certain fields of labor of which it once enjoyed a practical monopoly. A few avenues of economic advance have been closed to it. In various places it is feeling the economic effect of race friction and antipathy in increasing degree. It has to carry the incubus of a large class, mainly urban, which lives a "hand to mouth" existence. It furnishes, on the face of the figures at least, an undue proportion of the criminal population.

What is the relation between these facts and the future of the negro as a factor in Southern economic progress? We may as well rid ourselves at the outset of any fanciful ideas we may hold as to the deportation, extinction or supplanting of the negro. If any of these things come to pass, it will be in a period so remote that the fact—even if actually demonstrable at the present time—is stripped of all interest or significance. The negro is in the South to stay—for good or ill to himself and his section. This is not dogmatizing. It is merely a candid recognition of as stubborn a fact as ever confronted a people. And whether his presence is to be a hindrance or a help is a matter of joint concern to the two races destined to live together through an indefinite period of time. The white man is solely responsible for the negro's presence in this country; and this fact alone, if there were no higher consider-

ations involved, would devolve upon us a great measure of responsibility for the future of the race. We brought the negro here. It is for us to say whether we shall drop the burden, let the negro drift with his own current, increase in criminality, grow in idleness, and finally become a load too heavy to bear. To accept such a program would be such a confession of stupidity and weakness as the white race has never yet made. Deliberately to turn away from this program, would involve at least the assumption of an attitude opposed to all that the other course implies, if not the formulation and realization of a specific contrary plan of action.

Through a number of years this writer has endeavored to study the whole problem of the negro's presence in the South. Probably he is as well acquainted with the negro's economic limitations, abstractly and through concrete experience, as most men who have written upon the subject. No one recognizes more fully the inherent, racial burden which the negro carries, and which the white man can do little to lighten. Yet, after all has been said on that side, the writer does not hesitate to assert that the future of the negro rests largely with the white race. And this is neither more nor less than another way of stating a very old plantation axiom; namely, that the negro is pretty much what the white man makes him. There seems to be at least one common point of agreement among Southern white men in regard to the negro—differ widely as they do concerning most others. This ground of agreement is that the property-owning negro is usually "a good citizen" —a respectable, law-abiding, self-respecting individual. There is not the slightest doubt in my mind that if it were possible to make an analytical study of Southern prison populations, it could be demonstrated that the negro furnishes just as few prop-

erty-owning criminals as the white race. It seems to me, therefore, that whatever makes for economic efficiency among negroes—for more general property holding among them, for greater economic responsibility—necessarily makes also for less crime, for better standards of living, for better citizenship generally.

It is not difficult to recognize a few of the factors which, directly or indirectly, influence such economic progress among negroes—factors which lie wholly within the control of the white race. The exercise of a sense of discrimination between negroes of different classes, is one such influence. There are just as many different "kinds" of negroes as there are of white people. It is just as discouraging and disheartening to the respectable, decent, law-abiding negro to feel that the white community regards the entire negro element as one and the same class—to feel that he is held responsible for the doings and character of the lower class—as it would be for the white man similarly situated. Protection to person and property, by law and public opinion, is another such influence. It would be absurd to expect to find a group of thrifty, law-observing, respectable, property-owning negroes in a county or community which tolerated whitecap methods—whose negro population lived in dread of being maltreated or driven out by white irresponsibles or desperadoes. Furnishing a decent environment to respectable negroes striving to rear respectable families, is another such influence. This applies to the negro urban population, and is a matter wholly within the control of the white community. It would involve the segregation of houses of ill-repute, white and negro, in such manner as to render impossible their establishment in proximity to the homes of decent people of whatever color. Another, and one of the most important of

all such considerations, is the strict enforcement of criminal laws against the lawless element of the race, for the protection of the law-abiding. And with this should go the establishing of reformatory institutions for juvenile offenders. Every jail, county or city "farm," or penitentiary to which such offenders are committed, is inevitably a school from which a hardened criminal class is graduated. To the foregoing should be added the support of every deserving negro school, industrial or otherwise, a strict supervision of the teaching force in every school maintained by the state, and the broadening of the whole field of the educational training of the negro, along well considered lines, rather than its restriction along any line.

The white people of the Southern states have control, absolute and undisputed, of the political, social and economic affairs of those states, and of most counties in them. They frame every law enacted in the South—down to the last ordinance of every town council. Every sheriff, every mayor and police officer, every judge (save an occasional justice of the peace or the mayor of a negro village) is a white man. Throughout the length and breadth of the land there is not one organization, political, religious, or industrial, which is threatening, or even questioning, this control. Living under the laws which we frame, subject to the action of our officials, amenable to the processes of our courts, a non-detachable part of our economic order, sharers of our economic destiny,—are some nine millions of people of another race. Under this bald statement of fact, it were as idle to deny that we are in very large measure responsible for the part these people are to play in our economic future, as it were criminally unwise for us to fail to use every effort to make that part what it should be.

I may say, then, that the relation of the negro to Southern progress depends very much upon the action of Southern white people. The whole matter is problematical and uncertain. It is also one which is not likely to concern those sections which have a relatively small negro population. Where the negro does not live in sufficient numbers in any jurisdiction to deter the incoming of white people, from abroad or from other states, the race will probably be supplanted. This is true of large areas in Texas and of smaller sections in a few other states. Here and there, on the other hand, the white people are apparently surrendering territory to negroes, and negro communities are being built up. Thus a certain segregating tendency is seemingly at work. But where this is not the case, and where the negro forms a large portion of the total population, immigration is not likely to play an important part in the near future. There the progress of the community as a whole will be helped or retarded by the presence of the negro.

The measure of the negro's progress is the extent to which the masses of the race are contributing to the increase of the thrifty, law-abiding, property-owning class; just as the measure of the contrary tendency is the extent to which the masses are recruiting the ranks of the indolent, the shiftless, and the criminal. As between these opposing tendencies, I believe that the balance favors the negro's progress rather than his decline. I shall content myself with this expression of belief, rather than enter upon a speculation as to the future, as contemplated at the beginning of this paper. As this is written, the census of 1910 is being taken. Its findings will soon be available, when we shall have more material for either investigation of present conditions or for speculation concerning the future.

No other people, not even the negroes themselves, are as vitally interested in the evidence which is now being gathered as are the white people of the South. They should be the last, too, to misinterpret it—the first to draw upon it for assistance in shaping some practical course and policy with reference to the future of the negro as related to the economic progress of the South.

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